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Editor—HENRY E. SIGERIST

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CONRAD HEINGARTER IN ZURICH MANUSCRIPTS, ESPECIALLY HIS MEDICAL ADVICE TO THE DUCHESS OF BOURBON

LYNN THORNDIKE
Columbia University, New York

The chapters on Conrad Heingarter of Zurich as an Astrologer and as a Physician in my *History of Magic and Experimental Science*[1] were based on two incunabula of one work and manuscripts at Paris of several others. But these may be supplemented and our knowledge of Heingarter's medicine and astrology somewhat broadened by consideration of two other treatises by him extant in manuscripts at Zurich.[2] A third manuscript there[3] contains the text of the treatise on comets which I have previously discussed on the basis of the two printed editions.

On August 26, 1480, Heingarter addressed to the duchess of Bourbon and daughter of Charles VII a work on the state of her

[1] Vol. IV, Columbia University Press, New York, 1934, Chapters 54 and 55.

[2] These two treatises were discussed some years ago by Professor Henry E. Sigerist in a paper, "Conrad Heingarter de Zurich et la médecine astrologique au XVe siècle," published in *Comptes rendus du deuxième congrès international d'histoire de la médecine*, Evreux, 1922, pp. 323-28, which I regret to have failed to notice in the work mentioned in the previous footnote. Since this paper emphasized rather different features of the treatises from those on which I shall dwell, and since it was in French and in a somewhat inaccessible publication, perhaps I may be pardoned for discussing Heingarter's two works once more in English.

[3] Zurich Car C 140a, 15th-16th century.

health or medical advice[4] very similar to that which he had directed to the duke of Bourbon, her husband, three years before. It opened with the same three words, "Vellum nunc dux . . ."[5] Both prefaces affect humanistic phraseology, including the word *decus*. In both a table of contents follows the preface, as indeed was the rule in all Heingarter's works. Both open with an astrological section whose seven chapter headings are practically identical in both works. And a number of the authorities cited in favor of astrology are repeated without change. In general Conrad seems to have believed that what was sauce for the gander was sauce for the goose and to have followed roughly the same plan of presentation in his medical advice to the duke and duchess. Heingarter also displays his usual personal idiosyncracies, employs parentheses *passim* as punctuation, values leave of absence from court and the opportunity for literary leisure, and does not fail to mention his favorite retreat at Belle-Perche.

Such differences as exist between the advice to the duchess and that to the duke are due on the one hand to the fact that she enjoyed better health and took better care of herself than the duke did and so did not come in for so much lecturing from the mouth of her physician, and on the other hand to the fact that she was a woman, and hence a special section on pregnancy was added. Conrad had long since predicted from her nativity that she would be long-lived—

[4] Zurich C 131 (App. 27), an illuminated manuscript of 49 written fols. with 25 lines to the page. Fol. 1r has an illuminated border; fols. 2v and 4v, illuminated initials and partially illuminated borders; each chapter opens with an illuminated initial whose decoration overflows into the margin, and so on. The date is given at the end: fol. 49v, ". . . tuam vitam efficies longevam valde. Vale ducum decus optimum et valeant qui tuam dominacionem ac pudiciciam valere desiderant. Finit(um?) anno 1480° die augusti 26."

On the verso of the fly-leaf is written: "Conradi Heingarteri de Morborum causis tam coelestibus quam terrenis et de Sanitatis recuperande modis Liber. Duci Iohannie dicatus editus anno 1480 Die 26 Aug. Conradus Heingarterus Tiglirinus dicitur Caroli VIII Francorum Regis Physicus." (signed) "Conr. Gessnerus."

[5] More fully the incipit of the *Advice* to the Duchess runs, "Vellum nunc dux optima maxima christianissimorum soboles regum stellas ipsas altas . . ." The incipit of the text proper, fol. 4r, "Alteraciones varieque mundanorum mutaciones de sano in egrum et econtra . . .", also closely parallels that of the *Advice* to the duke: BN 11232, fol. 3r, "Mundanorum mutaciones variationes atque alterationes de sano in egro et econtra . . ."

alas for the accuracy of astrology, she died in 1482—of temperate complexion, and not subject to diseases. But some of her members are more susceptible to ills than others, so that it is well for her to be forewarned as to these by the stars. Certain positions of the planets must be carefully considered and provided against. The greater part of women today suffer from superfluous humidities and a white flux from the womb which is due to their eating and drinking things difficult to digest, whereas once the use of wine was unknown to women.

Turning to the preservation of health, Heingarter states that air is as it were the food and foundation of the vital spirit, and that therefore diseases coming from corruption of the air are more deadly than others. He advises the duchess to take plenty of exercise in the form of long walks or horseback riding or driving. When such outdoor exercise is not possible, massaging should be substituted. Even moving about slowly is better than remaining quiet, and " it is far better for her to stay awake than to oversleep." Overeating should also be eschewed, but vomitories and a clyster are specified in case it is not.

" Now pay attention, most noble lady, to what sort of food and drink is good for you. First, you should avoid all foods that are notably frigid and humid, as are all pot-herbs—beet-radish, spinach, purslane, lettuce, endive, cucumber and the like. Also to be avoided are viscous and cloying things suffocative of natural heat like pastries, the muscular parts and skin of animals, and all fish and especially large ones like carp, eels, tench and the like. Similarly to be avoided are all things full of blood and other humors, such as salt meat especially of old animals, and all things of slow assimilation in the stomach, such as radishes, chestnuts, the extremities of animals with tough flesh, and the like. Further she should avoid all food difficult to digest such as beef and all old meats and bread burned in cooking and bread not well baked and bread not well raised, and legumes, medlars, and the like. And she should avoid all windy foods such as all milk-foods and pot-herbs, raw vegetables and especially boiled and honeyed foods, and things on the order of garlic, onions, leeks, pears, fruit generally, and humid pot-herbs especially. From all those things just mentioned, most noble lady, you must abstain.

Now hear those that agree with you and are good for you. The first is bread partly of bran rather than made from the purest flour, well raised and three or four days old or more. Excellent meats for you are chicken, pigeons, and especially wild partridges, pheasants, doves and all little birds dwelling in groves and hedges. But ducks, geese, and in sum all aquatic birds are to be shunned. Of the flesh of quadrupeds veal and mutton are agreeable, wild boar rather than domestic pork, hare, kid and whatever naturally augments dryness in the body and is easy to digest. Such meats should preferably be roasted rather than boiled and may sometimes be seasoned with vinegar, verjuice or salt but not too often. Of cereals rice is suitable, millet, panic, red and white chick-peas, cabbage, sage, wild thyme, parsley, mint, rosemary, rue, and all other pot-herbs of hot and dry potence prepared as foods. If she will have cold and humid food like lettuce, endive, chicory and purslane, she should never take them alone but always mixed with hot things like fennel, parsley, and those already mentioned.

Of spices with which food is seasoned all are acceptable and especially hot and dry aperitives good for liver and womb like cinnamon, spikenard, ginger, mace, galingale, nutmeg, lignum aloes, both kinds of pepper, saffron, ameos, amomum, anise, fennel seed, parsley and cardamom large and small and iugella(?) which some have believed to be the same as small cardamom but falsely since small cardamom has a seed slightly oblong. Large cardamom is what prince Avicenna calls heilbangne and is seed of paradise and ranks among those medicines that powerfully rectify liver and womb, whether taken alone or with others.

Fruits that agree with her are almonds, pistachios and raisins with dry seeds well masticated and dried figs and especially if roasted. . . . (After quoting Dioscorides and Avicenna, Heingarter continues.) . . . And she may occasionally eat pears that are aromatic and ripe, but better cooked than raw, and in sum all fruits that participate in heat and dryness and aperitive virtue.

Of salted foods and things preserved with salt she may have salt meat, if not fat, and salted cheese and pickled olives and fish long preserved in salt. Other condiments good for her are preserved ginger, candied sea holly root, prunes, preserved turnip and neep.

Similarly all preserves that are heating and that dry and purify the womb.

" The proper drink is white or red wine of thin consistency with a bouquet and notably hot and dry. And let her above all shun the use of water, at least much of it, unless long custom has habituated her to the use of weak and watered wine." [6]

Heingarter opens the next section of his *Advice* with a brief excursus into the history of medicine. Apollo founded the methodical sect, Esculapius the empirical, and Hippocrates the rational which Heingarter follows—with a list of compound medicines. But it is to be noted that he has already cited more recent medical writers like Bartholomaeus de Montagnana and Bernard Gordon. Later he gives fifteen rules for the pregnant. First, the system should be kept purified by gentle means which he specifies. Second, she should take temperate exercise and slow walks. Third, she should not enter the bath. Fourth, the head should not be anointed with anything unctuous. Fifth, excess should be avoided in all natural functions, and sexual intercourse is harmful in many ways to the pregnant. Sixth, all causes of abortion should be avoided, especially during the first week or first three days. Seventh, the abdomen should be kept covered and warm. Eighth, bread eaten should be of fine flour and taken with thick, rich broths. Ninth, sharp and bitter food should be avoided. Tenth, all things provocative of the *menses* should be avoided. Eleventh, on the day of conception one should fast. Twelfth, the wine drunk should be odoriferous, thin and old. Thirteenth, if women in their second month hanker for fruit, the best for them are raisins with dried seeds, and quinces and pomegranates, cherries and the like. Fourteenth, they should comfort the stomach. Fifteenth, all local applications to stomach or womb should be composed of heating and styptic medicines.

Finally, in taking leave of the *Advice* to the duchess, we may reproduce its table of contents reduced to a tabular form.[7] It opens at fol. 2v, " Distinctio huius libri. Totus hic liber in duo distinguitur volumina quorum primum de causa efficiente celesti tuarum valitudinum tractat. fol. iiii Secundum curam tam preservativam quam cum actu in lapsa fueris edocet. fol. xxi. . . .

[6] Translated from II, ii, 6, De cibo et potu: Zurich C 131, fols. 32v-34r.
[7] Sigerist, *op. cit.*, pp. 324-5, has already given it *in extenso*.

Volumen I

1 de causis efficientibus tuarum valitudinum in universali
2 de utilitate sciencie astrorum et quod sit medicis proficua et necessaria
3 de tuarum valitudinum causis celestibus in speciali
4 quos morbos celi significatores influant et quibus temporibus
5 de membris magis dispositis ad infirmitates capiendas
6 quod membrum quem humorem quilibet planetarum regat
7 de temporibus componendorum atque administrandorum medicaminum

Volumen II

Dist. i causam compositionis atque destructionis humani corporis atque de humiditatum generatione ratiocinatur
1 causa compositionis et destructionis humani corporis
2 cause superfluarum humiditatum quo ad radicem inferiorem

Dist. ii de sex rebus humanum corpus conservantibus perquirit
1 de aere
2 de exercicio et quiete
3 de somno et vigilia
4 de inanicione et replecione
5 de anime accidentibus
6 de cibo et potu

Dist. iii de restauratione amisse sanitatis et regimine pregnancium sermonem facit

Tract. i de correctione matricis
1 de adequatione materierum in matrice stomacho et epate
2 de diversione materierum a profundo ad circumferentiam
3 de materierum evacuatione
4 de curatione particulari membrorum mandancium atque recipiencium
5 de quibusdam medicinis maxime appropriatis stomacho epati et matrici in lapsu frigido et humido

Tract. ii de confortatione atque conservacione fetus in matrice post conceptionem

1 de regimine universali pregnantium
2 de matricis pregnantis confortatione

On April 1, 1488 the duke of Bourbon died; the duchess had preceded him six years before; and, on November 30, 1488 we find Conrad Heingarter, no longer at his favorite Belle-Perche, addressing a brief *Defense of Astrology*[8] from Moulins to Henri de Granvil, the admiral of France. As a matter of fact, the name of the admiral of France from 1487 to 1508 is generally given as Louis Malet de Graville.[9] The *Defense* is directed against some opponent of astrology, real or imaginary, individual or generic, whom Heingarter calls a "theologicide" and sophist who tries to lacerate the divine science of the stars with his unwashed and polluted mouth and teeth full of the livor of invidiousness. In defense of the art Heingarter asserts that Seth and Ionicus predicted the flood by astrology, that Moses learned it among the Egyptians, Syrians and Chaldeans, that Job was a very skilful astrologer, that Christ recognized election of favorable hours, and that church fathers like Gregory and Augustine, though they might oppose the fatalism of pagan *genethliaci,* favored good astrology. Hippocrates and Galen, John Scot and Aquinas, and various other medical men and schoolmen are adduced as supporters of astrology. In closing Heingarter makes the point that no science is so fully known and perfected that there are not many discrepancies and errors in it. How theologians disagree! Nor are astrological judgments the only ones that sometimes go wrong. The judgment of the church, too, often is at fault, for it depends upon human opinion, while only the judgment of God rests on truth. Such were the utterances of Heingarter on the eve of the persecution for astrology of his friend, Simon Phares.[10]

[8] Zurich B 244(769), 15th century, fols. 1r-4r: Conrad Heingarter, Astrologie defensio. The dedication opens, "In gubernandis rebus publicis soliti sunt veteres . . ." The text begins, "Iam et si compertum habemus aput veteres christiani nominis ignaros . . .", and ends, "Hec obiter inter curiales tumultus laboresque nostros medicinales pro astrologie dixerim defensione." Stains make portions of the text hard to read. This manuscript I have already noted briefly in *A History of Magic and Experimental Science*, IV (1934), 697.

[9] Pélicier, *Lettres de Charles VIII*, I (1898), 95; P. M. Perret, *Notice biographique sur Louis Malet de Graville*, Paris, 1889.

[10] See my *History of Magic and Experimental Science*, IV (1934), Chapter 62.

The Gout (from an old print of 1799).

A HISTORY OF THE TREATMENT OF GOUT *

MAURICE A. SCHNITKER, M. D.
Boston, Massachusetts

OUTLINE

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The subject chosen for to-day is a history of the treatment of gout, although it might as well have been entitled "the slow progress of medicine," for gout is one of the oldest described diseases, and really the treatment of it has changed very little through many centuries. It is one of the humorous diseases in medicine, the subject of much satire and ridicule. Kings and tyrants have boasted

* Given before the Journal Club of the Peter Bent Brigham Hospital, May 17, 1935.

of having it, and others have suffered the tortures of the damned with it. In the arts, gout, although a most painful and troublesome affliction, is rarely depicted as a tragic affair, but as a source of satirical and caricaturistic wit.

In beginning a review of this subject one finds the bibliography to be almost overwhelming. Although actually not counted, the references in the literature on gout, its history and treatment, appear to number several thousand. Consequently in this hour one could hope only to touch upon the high spots. Through the courtesy of the librarians at the medical school I have obtained many of the oldest references, some of which, because of their aged condition, are not allowed to be passed to you for review.

To show how old the disease gout really is, one is able to go back to creation. Not that there is any evidence that Adam or Eve had the gout, but in 1831, Hamilton (1) wrote "History of Medicine, Surgery and Anatomy, from the Creation of the World to the Commencement of the Nineteenth Century." His first mention of the gout is after the birth of Christ, where he outlines the ideas of Aretaeus (200 A. D.) that the nervous system was the seat of the disease. Aretaeus will be discussed later, but the gout was known for some time before that.

In the literature Hippocrates (460-370 B. C.) is given credit as being the first to describe the disease, but that was in man. For "podagra," as the gout was then called, was a term used before 500 B. C. to designate an affliction of the joints of beasts of burden. Before Hippocrates had used the term podagra for gout in man, there was an affliction of the joints commonly seen in hunters and later considered to be the same as the gout. It was known as the "Disease of Diana" after Diana the goddess of the hunt. In Laconia a temple was dedicated to Artemis Podagra (2), and here the people afflicted with that disease prayed for relief. Another mention before Hippocrates' time is made by Hieron, a tyrant ruler of Syracuse from 478 to 467 B. C., who mentioned bladder stones in individuals suffering from gout (2).

The origin of the terms "podagra" and "gout" has been well established. "Podagra" is from the Greek, "agra" meaning a seizure and "pous" (pod) meaning foot. As will be seen, although

gout and rheumatism were confused even after Sydenham's classical description, the earliest Greek writers were far more accurate than those of the Renaissance, as they confined the term podagra to joint afflictions of the foot alone. For seizures in other joints of the body they used an appropriate prefix—as "chiragra" for the hand, "pechyagra" for the elbow, "gonagra"—knee, "dentagra"—teeth, "cleisagra"—clavicle, "omagra"—humerus (shoulder), "rachisagra"—spine and "tenontagra" for pain in the larger tendons. For involvement of the hip they used the term "sciatica." The term "gout" was not used until the thirteenth century when Radulfe (quoted from Garrod) introduced the term into the literature. It was the popular conception that the uric acid deposite of gout were the excretions of "bad humors" from the body, drop by drop during agonizing seizures of the malady. Thus the term "gutta," taken from the Latin and meaning a "drop," was the origin of the name gout. That term has been universally accepted, as in English it is the "gout," in French "goutte," in German "gicht," in Italian "gotta," and in Spanish "gota." James Russell Lowell, who was severely afflicted with the gout, in his humorous way did not agree with the Latin origin of the word (3). "The disease," he says, "derives its name from the patients inability to *go out*. The ordinary derivation from gutta is absurd, for not only is the German form *gicht* deduced from *gehen*, but the persons incident to the malady are precisely those who themselves, or their ancestors for them, have kept just this side of the gutter." So much for the term gout.

To return to Hippocrates, he not only described gout as an entity, but he recognized that eating and drinking had something to do with its cause, that there was a rich man's and a poor man's gout, that eunochs never had the disease, and that women seldom had it before the menopause (4). "Podagra" to his mind, was caused by the presence of gall or phlegm in the blood. For treatment he advised the burning of raw flax in the neighborhood of the joint, or if that did not suffice, the continuous application of cold water to the part.

The next account we have is in the writings of Galen (131-200 A. D.) (5), who was the first to speak of the hereditary nature of

the disease. He added that venery was probably a cause of gout, and as they already then appreciated the effects of wine, we later hear the aphorism that " podagra is the daughter of Bacchus and Venus." His concept of the disease was similar to that of Hippocrates', namely, that it was due to the presence of spoiled and thickened humours in the body that needed to be expelled. In addition to the application of heat and cold, he advocated the free use of bleeding and purging in the treatment of the disease.

Aretaeus, the Cappadocian, lived at the same time as Galen, about 200 A. D., but, as was the custom of the day, neither mentions the other in his writings. It is difficult to say then, whether or not their treatments were independenly formulated. If the disease attacked only the foot, hand or hip, Aretaeus called it podagra. If the affliction was more widespread, he called it rheumatism. The pathology he placed in the muscles and tendons rather than in the joint. It was he who first described the scanty, deep yellow and cloudy urine in gout. That he recognized the intermittent nature of the disease is shown by his story of a man, severely afflicted with podagra, who won an olympic race during a remission. Aretaeus' treatment was like Galen's; he advised scarification to draw blood, but he was decidedly against purging. He belived that the white hellebore was the great remedy early in an attack. To apply sheep's wool to the joint and to bathe the part with oil of roses and wine he considered good treatment. Perhaps the following was acquired from the laity, but in his works (6) one reads: " It is said that the following application is powerfully anodyne; let a goat feed on the beet iris, and when it is filled therewith, having waited until the food it has taken be digested in the stomach, let the goat be slaughtered, and bury the feet in faeces within the belly."

Caelius Aurelianus, 500 A. D., was the one to point out the bony involvement in gout and to describe the disease as a " sensation as if ants are crawling over the part " (7). Although podagra is said to be very uncommon in the tropics, he pointed out its prevalence in Cairo and Alexandria in Egypt. No new ideas in the method of treatment were promoted by him.

In 1878 a German writer, Theodor Puschman (8), made a literal translation of a Greek manuscript, written by a Greek practitioner

named Alexander of Tralles, who lived 525 to 605 A. D. He practised medicine later in his life in Rome. Before his time the roots and leaves of a flowering plant of Asia Minor had been used for many years for the treatment of many disorders, as found in the works of Paulus Aegineta, Nonnus, Actuarius, and Myrepsus. The name of this plant was the "hermodactyl," * or "mercury finger," named after Hermes the inventor of astronomy (2). It was also called "surugen," or "anima articulorum," meaning the soul of the joints (45). The old Greeks believed that the green leaves of this plant, worn on the skin, cured all illnesses, especially of the eyes, throat, teeth, skin, nerves and joints. The women of the time roasted the bulbs of hermodactyl as one would chestnuts and ate them to put on weight; others used the bulbs for bath salts. A tea of the plant was also widely used as an aphrodisiac. In case of poisoning from the plant, cow's milk was used as an antidote (2). It was the root of this plant, the hermodactyl, that Alexander of Tralles introduced as a specific in the treatment of podagra about the year 560 A. D. Morphine was already then in use as a drug and the Greeks knew the deleterious effects of its continued administration, so Alexander used the hermodactyl in place of morphine, when the patient was in severe pain and requested something to be taken internally. He used other drugs internally too, for he classified podagra into four types, according to cause: (1) *sanguinous*, where the joint is hot, caused by the blood being over-heated. For this type he advised bleeding, cooling salves and cataplasms; (2) *bilious*, where the joint is red, caused by the presence of gall in the blood. Aloes and drastic purging he advised for this type; (3) *phlegmatic*, where the joint is painful, but without redness, heat, or swelling, thought to be caused by phlegm in the blood. Diet and purges was the treatment in this type; and (4) *melancholic*, the cold but very painful joint, caused by the presence of black gall in the body. This type he treated with diet and purging, the rubbing of hot oil over the skin and cantherides vesication. If edema of the joint was present, he rubbed and bathed the part with a salt solution.

In a long chapter on the treatment of podagra he lists some 40

* It seems to have been proven that the hermodactyl is colchicum. See pages 101-2 of this article.

prescriptions, some containing as many as 30 ingredients, including scilla maritima, thymus, dill, mandragora root, iris, veratrum viride (the white hellebore), caraway seeds, anis, rhubarb, wolf's milk, vinegar and honey. He knew the intermittent character of the disease and advised "cyclic treatment," with diet, catharsis and abstinence from liquor, to be adhered to during remissions as well as during relapses. Eight of his 40 formulae contain the hermodactyl, and to make the prescriptions containing it more palatable, he added caraway seeds, ginger, pepper and aloes. The beneficial effects of hermodactyl he attributed to its purgative action.

At about this time, 500 A. D., there lived in Amida, in Mesopotamia, a surgeon named Aëtius, who wrote much on the treatment of rabies with the use of the common sorrel. He was one of the early surgeons to use the cautery. For podagra he formulated a secret powder to which he gave the name, *grand drier*, with the signature that it be used the year round (1). In addition he advocated a strict hygienic regime, to be varied from month to month somewhat as follows:

January — a glass of pure wine every morning.
February — eat no beets.
March — mix sweets with eatables and drinkables.
April — refrain from horse-radish.
May — no polypus fishes.
June — take cold water every morning.
July — abstain from venery.
August — eat no mallows.
September — drink only milk.
October — garlic must be eaten.
November — bathing is prohibited.
December — eat freely of cabbage.

He makes no mention of the hermodactyl, but apparently it was used quite extensively, for in 968 A. D. we find the plant included in a pharmacopoeia written by Abu Mansur Muwaffak bin Ali al-Harawi (9). We find it in the 13th century in a treatise on gout, written by Demetrius Pepagomenus, dedicated to the emperor Michael Palaeologus (35, 45), who reigned 1282 (?), where one

reads: "Composition of simple purgative pills. Aloes, one part, hermodactyl, half part, licorice or cinnamon in order that hermodactyl may be rendered agreeable to the stomach, half part. Pure scammony, one-sixth part. Make into pills, administer according to the strength of the patient, quantity and particular kind of humor, and according to the season of the year."

Following this we find the use of the hermodactyl to have been forbidden, because it was thought to be a fatal drug. So for the next two centuries we find little mention of it. The regression during the middle ages, for it was really such, is best shown by a recent translation of a mediaeval poem by Helen C. Brooke (10). Here is the English translation, and actually it seems ridiculous, when we remember the much more logical treatment that had been used a thousand years before.

"A goose is taken which seems to be old.
It is then plucked and deprived of its viscera
And well cleaned. Then the goose is not eaten.
Pig fat, sheep's tallow are procured.
With pitch, take resin of a larch or of a fir tree.
Mix these four. When the four are mixed,
It would not be idle for you to anoint a handful of frankincense with this.
This confection ought to have a proper amount of wax.
What were estimated before are made equal on a balance.
The belly of the goose is properly filled with these.
To roast the goose, it is then placed on a fire.
A dish is set beneath to catch the grease.
This grease alleviates the gout in anyone.
This goose-fat is worth more than any treasures."

A translation of a 14th century manuscript has been made by Saye (11), an article written by Jehan LeFevre of Metz for the gout of one Sir Jehan d'Aix. In this the treatment of gout has even a modern tone in that it promises relief but not cure. There are some 59 rules, those prohibiting and those allowing certain foods and combinations of diet. But all in all the treatment is quite rigorous, consisting of general prohibition of foods and drink and many

recipes of herbs, along with a certain amount of superstition. Among other things, the rules stress that one must determine whether the parts feel hot or cold, as the therapy depends a great deal upon that.

Ambroise Paré, 1510-1590 (12), made use of the hermodactyl in gout, although he advocated particularly the use of diuretics, i. e., parsley, the roots of certain plants, asparagus and others of similar character. These were properly brewed and given to the patient. With this treatment he noted the diminution of pain. Paré, in studying the ancients very thoroughly, advised likewise the use of cathartics. In short, the purpose was to get rid of the virus, " verolique," in any possible way. Furthermore, he opened up the painful area with cautery and rubbed hermodactyl, or gentian, or mercury, or alum into the part.

Although the use of hermodactyl in the treatment of disease, particularly gout, had been forbidden, a few continued to administer it, and in 1548 Fuchs, Fuchsius (2),* to satisfy himself of the validity of the prohibition of the use of the plant, conceived the idea of experimentation. Perhaps his modes of administration were incompatible, or the doses were too large; nevertheless, in feeding or by introducing extracts of hermodactyl into the vein of dogs, the animals died. Such experimental evidence of course, did not promote the use of the drug. He also used the plant for the extermination of body lice.

We know that the hermodactyl was not entirely lost as Sennert (Daniel) wrote a dissertation on five diseases, " Scurvey, Dropsie, Feavers and Agues of all Sorts, French Pox, and the Gout," translated from the Latin into English by H. Care in 1676 (13). In his chapter on gout he mentions hermodactyl as a " sudorifick." From our scant knowledge of the middle ages, civilization seems to have regressed during this period, so we find such works as Sennert's containing some rational ideas, but much more superstition. For example, the idea now prevailed that gout was caused from eating carp, or drinking sandy water, or that a retention fistula in ano was

* Also given credit for naming Digitalis purpurea. (Withering: An Account of Foxglove and Some of its Medical Uses, with Practical Remarks on Dropsy and other Diseases. Birmingham, 1785.).

a specific cause. On venesection he gives definite instructions: "And if all or most part of the Joynts be affected, then the basilique Vein (either in the right or left Arm) is to be opened. But if only one Joynt be affected, then the opposite Vein is to be opened. As for example, if the Joynts in the right Arm be affected, the Vein in the left Arm is to be opened; and so on the contrary. If the right Foot be troubled with this Grief, then the Vein of the right Arm is to be opened; if the left Foot, then the Vein in the Arm is to be opened on the same side. For this is more commodious than to open the Vein in the Foot of the opposite side: for by that former Venesection the fluent humours are drawn back; whereas by this latter they are only derived unto some other part. And the like is to be done if the pain be in the Hip."

Purging with aloes was also advocated, and as a special vomitory, Sennert used powdered butcher's broom mixed with the juice of unripe oranges. As special treatment for pain he had numerous remedies, as a poultice consisting of goat's milk, white bread, egg yolk and saffron. Or, he might use hot applications of marsh-mallow leaves and cabbage. Sometimes he would apply a poultice of cheese to the joint. Or in place of cheese he would use the fresh dung of an ox or cow. He thought that sperm of frogs mixed with barley was excellent as a hot fomentation to a joint afflicted with gout. Even for tophi he had special remedies, ammonia and vinegar, or an ointment containing tobacco juice, citron wax, rosin and turpentine. If it was a special case, he would make a salve of honey, bear's grease, vinegar, the oil from a mountain snake and wax. And for severe pain, he would resort finally to the use of opium.

It may not be called a step forward, but a new form of treatment for gout was introduced in 1675, and it happened in this way. One Herman Buxtoff, a native of Utrecht and sufferer from the gout, while in India was taken with a paroxysm. To give him relief an old Indian woman took pith of a species of artemesia, known as "moxa," and burned these pellets on the affected part. Apparently the relief was very prompt; he published it in the Dutch literature and here it was seen by Sir William Temple, then an ambassador from the court of England to the Hague, who tried it for the

treatment of his gout (1). He was very enthusiastic with the results and published an essay on the cure of the gout by Moxa, London, 1690-1 (14). In the literature Temple has been given the credit for introducing this method of treatment, although the origin belongs to the Indian woman and to Buxtoff. Its method of use was to place the Moxa on the affected part, then burn it until the skin became charred, a method of counter-irritation.

All this was going on at a time, when real progress in the disease was being made, namely, the separation of gout as an entity from other forms of arthritis. The credit for this advance belongs to Thomas Sydenham (1624-89) (15). Another valuable contribution was his re-introduction of quinine in the treatment of malaria in 1666. Quinine had been introduced into medicine in 1630, its use had lasted some ten years, and it had then been lost. But to return to gout, Sydenham had long suffered from both gout and calculus, which finally killed him; he had studied it intensively, and he is still considered the first authority on the disease. It was he who made the statement: "If you drink wine you have the gout; if you do not drink it, the gout will have you," which has been quoted by nearly every writer since. He described a typical attack as a disease "of the foot" and outlined its course very clearly. He believed the disease to be due to the presence of peccant matter and that by an attack nature tended to throw off the bad humours herself. Of the three methods of treatment previously proposed many times, namely, bleeding, purging and sweating, Sydenham did not generally approve; he felt that bleeding increased the humoral complaints, that purging may bring on an attack elsewhere, and sweating weakened the body too much. He urged exercise to the diseased member and mentioned two principles in treatment, against the "causa antecedens" or indigestion of humours, and against the "causa continens," the retention of putrid and acrid humours. As these two "are as far as the poles asunder, hence the difficulty of treatment," Sydenham advised the use of "digestive," whatever helps nature, and very simple recipes of medicine. These "recipes" contained many simple herbs, as "the more numerous the simples, the more potent the medicine." For chronic gout, warming herbs

and perhaps bleeding and mild purging, particularly in the intervals, constituted his regime.

A number of the treatises on gout during these years were written by sufferers of the malady or for the benefit of one afflicted. This book by George Cheyne (1722) (16) was written to help the gout of one Richard Tennison. He explained the disease on the basis of the vascular bed, the arterioles of the extremities being too small to allow the blood to pass from arteries to veins; as a result the blood stagnated, the excess tartrates " precipitated out " and thus tophi developed. Then too, he wrote at considerable length on what was considered to be irregular gout, manifested as headache or pain in the chest or abdomen and so on. The treatment for the disease he outlined under two methods for treating regular gout, a method of treatment after an attack and remedies for the irregular forms. Because he believed the disease occurred in people with small, narrowed and thickened blood vessels, he advocated (1) exercise and heat to stretch and widen the capacities of these small vessels. He advised strictly (2) to lessen the intake of food and wines and purging too, to rid the body of noxious substances. Mercurial purges, to his mind, were quite specific in breaking up gouty concretions. Gascoin powder, Goa stone, Sir Walter Raleigh's cordial, of course under the craving of the appetite, and spirits of Hartshorn were specifics with him during an attack. He advised against camphor because " it is too hard on the stomach and gives heart burn." After an attack a mild cathartic as rhubarb was very good. Added to that is sulphur " one of the best remedies in the world for gout." Ass's milk, ½ to 1 pint every morning, and bitters of gentian, cinnamon and orange peel served to keep up the strength of the individual. The idea in " irregular gout " was to expel the disease outwardly by way of the muscles and tendons. The head pains he treated as any violent headache by bleeding from the arm or jugular vein, or by cupping on the back, or blistering between the shoulders. Sometimes he would blister the ankles, thus to draw the bad humours from the head to the feet. Any abdominal pains he treated by a stomach medicine containing tincture of hiera picra, compound spirit of lavender, tincture of snakewood and tincture of diambra. " This," he said, " may bring on the

piles, but it will discharge the gout of the guts." Before leaving Cheyne's works it should be mentioned that he appears to have been one of the first to recommend bath waters as a specific for gout.

Speculation about the disease continued as may be seen from Sir Richard Blackmore's book, " Discourses on the Gout, Rheumatism, and the King's Evil," London, 1735 (17). Approximately the first third of the book is given over to a preface denouncing the reasoning and treatments used by previous writers. He stressed upon the psyche in gout, both as a cause and a cure of the disease. " Fright can cause and cure an attack, similarly as in convulsions, hysterical fits, jaundice and smallpox—these are all caused by the imagination." To prove his contention he cites the fact that around 1700 there was a prevailing belief that the touch of the hand of the King of England or the King of France would cure an attack of the gout. Similarly the handling of gold was thought to be curative. " These crazy ideas are proof that it is the imagination that cures the attack," writes Blackmore. The outline of his treatment, therefore, was very simple, consisting of the use of flowers of sulphur in ass's milk for the digestion and opium and laudanum for severe pain. He does not mention the hermodactyl.

By 1750, spa baths and mineral waters were being widely recommended for the treatment of gout. In 1751, William Oliver wrote a short paper on the Use and Abuse of Warm Bathing in Gouty Cases (18). According to him, all diseases are caused by obstruction to circulatory flow, and so with gout. Hence the principle that any bathing, which must be properly carried out, however, would assist nature in throwing off an attack by dilating the blood vessels. To aid nature further he advised patience, flannel, water gruel and clear whey. Of course it would seem almost foolish simply to tell the patient to bathe. There had to be special baths for special types of gout. The seasons were very important, April, May, June, August, September and October being the good months for hydrotherapy. Specific directions on how to take a bath, the time limit, the temperature of the water, the warm bed and sweating for an hour after the bath were all included. One rather humorous prescription of Oliver's is his wine " vomit " for " gout on the stomach." " Mix two drachms of tincture of senna with one to

two ounces of an ipecac infusion in wine. When this begins to work, give two parts of camomille flower tea and one part of old mountain wine"—"three to four pewks are sufficient" to give good results. To this he adds "in the above mixture, give the patient the wine he likes best; this procedure gives him such an aversion to it he won't touch it again for weeks, and that helps to cure the gout too."

The next great step forward in the treatment of gout was the introduction of Colchicum autumnale by Baron von Stoerck of Vienna in 1763 (19). It is apparently a fact that the Egyptians and Arabs had used Colchicum montanum in the treatment of joint diseases, but this is a different plant from the Colchicum autumnale (2). Dr. Buchner before Stoerck, however, had recommended colchicum for the treatment of asthma and pleural effusion (2). Stoerck, who had previously treated many diseases, especially cancer with Burdock tea, was able to show that colchicum could be taken without the danger of dying. He introduced the wine of colchicum made from the corm, as a diuretic, especially good in scarlet fever but also good for joint pains. "It dissolves phlegm and increases expectoration and urine" was his understanding of the action of the drug. The name "colchicum" is derived from "Colchis," in ancient geography, a nearly triangular district of Asia Minor at the eastern extremity of the Black Sea, represented by the modern province of Mingrelia and Abasia. It was celebrated in Greek mythology as the destination of the Argonauts, the residence of Medea, the special domain of sorcery, and the "home of all healing plants." There are four varieties of the colchicum plant, colchicum variegatum, the autumnale (also called meadow saffron), the arenarium and the montanum. The Colchicum autumnale or meadow saffron was the one introduced by von Stoerck for the treatment of gout.

A digression here for a few moments seems justified to tell you what seemed to be one of the most interesting facts encountered in this study of the history of the treatment of gout. Perhaps a few moments ago you thought it strange that so much emphasis should be placed on the use of the hermodactyl in gout, but here is the reason. It has been thought by many that the use of colchicum in

gout dates back only to von Stoerck in 1763, but actually, as first shown by J. E. Planchon in 1856 (20), confirmed and illustrated by Delpeuch in 1900 (2), the colchicum autumnale and the hermodactyl are one and the same plant. Therefore, if this is true, the use of colchicum in gout can be said to date back nearly 1500 years to the time of Alexander of Tralles (500 A. D.), who introduced the hermodactyl for the treatment of podagra. Perhaps it goes back even beyond that, as Delpeuch thinks, to the time of Oribasius whose writings date to the fourth century.

After von Stoerck then the wine from the corm and the tincture from the seed of colchicum came into wide use, although from time to time a few writers denounced the remedy as will be pointed out later.

The next two writers, J. Hill (21) and William Cadogan (22), were also sufferers from the gout. Hill was a physician who stressed that gout was a chronic and incurable disease. In his book written in 1769 he recommended highly the use of burdock tea, about which von Stoerck had also written a great deal in the treatment of cancer. He felt that local applications to the part affected was wrong in principle, but that "yarn stockings next to the skin" and "large shoes of soft leather lined with wool" would greatly alleviate the pain. He writes that fish in the diet do no harm, but the sauce may have very deleterious effects. For the dissolution of complicating renal stones Hill advised a tea of the bark of mezereon. The three essentials of his treatment for this "chronic and incurable disease" were good digestion, free circulation and open prespiration.

Perhaps if Hill, as some others of his time, had "looked across the North Sea and adopted the methods of a contemporary, Dr. Valentino Krauetermann, of Arnstadt in Thuringia," as Williams puts it (23), he would not have had such a pessimistic outlook toward this incurable affliction. For Krauetermann's "Natural Magic," printed at Leipsic and Arnstadt in 1730, displays the utmost confidence in the treatment of gout. Williams has recorded some of these: "Dig up moles in a marsh—do not touch them with the hand—put them alive in an earthen pot, lute it tight; and putting fire around it, heat them to a powder: mix in a little sugar,

also some oil of lavender or roses; of this, take a knife-point full morning and evening. Or, take a good handful of candleberry root (akin to our bayberry and wax myrtle), chalk the size of an egg; pulverize the chalk, put with the candleberry root into a frying pan with smith's forge water and boil half an hour. Cool the fluid and put the feet in as into a footbath and bathe them in it. Then make a hole in the earth and pour in your mixture, water, roots and chalk; as it disappears and rots, the podagra disappears." Williams also quotes from John Loselius' work on Podagra, giving a method of "transplanting the extracted podagra." "Shave with a razor the hair off both legs and at the same time cut the nails of hands and feet—this should be in the spring when the sap is flowing, and the day before new moon, make a hole right into the heartwood of a poplar or oak tree and insert the hair and nails. Stop it tight with a plug made of a branch of the tree and the transplantation is perfect. Cut off close to the tree that part of the plug that sticks out and the next day plaster the place well with cow dung. If the patient does not in the next three months feel the *malum* again, he can credit it to the tree." (Nothing is said as to a contrary result). And much of the other literature of this period is full of just such formulae.

On Cadogan's work (1675-1726), we have a Boston edition by Henry Knox, published in 1772 (22). This is a dissertation on all chronic diseases, of which gout is the representative. To him all chronic diseases, and again gout as the example, have 3 causes—(1) indolence, which leads to (2) intemperance, which leads to (3) vexation. Cadogan differed with former writers in believing that gout was not hereditary, it was not periodical, neither was it incurable. As Dr. Fitz pointed out in a recent article (24), Cadogan's treatment of the gout did not differ in many ways from our present therapy. Ordinary vomiting, purging, bleeding and blistering, in his opinion, were all wrong. His principles of treatment were three, directed against the 3 causes of chronic disease already mentioned, namely, activity for indolence, temperance for intemperance and peace of mind for vexation. He does not mention colchicum in his outline of therapy. In an acute attack he would order bed rest, a mild purge, gentle anodynes and local cataplasms. If the individual

was otherwise healthy, he might resort to phlebotomy. He advocated a simple nourishing diet, that the meats be rare done and of course, temperance in liquors. At about this time there was introduced into medicine a secret powder preparation by the Duke of Portland, and this subsequently popular remedy was known as the "Portland powder." This powder will be mentioned again, but suffice it to say here that Cadogan warned strongly against the use of it in gout.

In the next 25 years we find chemistry beginning its contributions to our knowledge of gout. Karl W. Scheele is given credit (25) for discovering the substance uric acid in 1776 as the constituent of a concrement. In the same year T. Bergman analyzed a bladder stone and came to the same conclusion. M. Forbes in a treatise on Gravel and Gout, London 1793 (26), was the first to express the idea that there is probably excess uric acid in the blood in gout. It seems almost incredible that for centuries tophi had been seen in gouty subjects, and yet there is no record that anyone ever examined one. Apparently the first to examine a tophus was the English chemist W. H. Wollaston (27) in 1797, isolating uric acid from both the gouty and urinary concretions and establishing an association of disturbed uric acid metabolism with gout. Then in 1800 the English pharmacologist and biochemist Bostock (35) found that the red sediment in the urine of gouty patients was crystalline sodium urate.

William Heberden, 1710-1801, wrote an excellent treatise on gout and its differential diagnosis from rheumatism, published in 1803 (28). He is much more conservative than previous writers in his consideration of the subject, and he added as the chief form of treatment the use of Peruvian bark as a stomachic, and this particularly in the intervals between attacks.

In the next year Robert Kinglake (29) of Edinburgh, 1804, wrote a dissertation on the gout and dedicated it to the Duke of Portland, of Portland Powders. This is mentioned particularly because of his meaningless definition of the disease: "Gout is a greater or lesser degree of inflammatory affection of the ligaments and tendons, induced by distempered excitability of those parts from various causes." His fundamental principle of treatment consisted

in the local and general diminution of excessive heat by any cold medium, as ice, snow, or evaporating ether. He also advised the intake of a glass of cold water every ten minutes during an attack. " Little can be derived from any medicine " was his belief. In the case of one chronically affected, mild heat, as rubbing neat's foot oil into the skin, was supposed to be beneficial. Or, in place of that, the yolks of three eggs in a pint of lukewarm water made an excellent liniment. Finally, wine was to be shunned and costiveness removed in the way of constitutional therapy. In the severe case he too would resort to the use of opium, preferably the camphorated tincture.

In our history so far should be mentioned a number of famous individuals who suffered from the gout, namely, Alexander the Great, William Harvey who discovered the circulation of the blood, Louis XIV of France, Sydenham, Cadogan and James Russell Lowell. And the next one we meet is Benjamin Franklin. There is an interesting legend to the effect that in one of his European travels he observed the use of the wine of colchicum in the treatment of gout; he tried it himself, and obtaining beneficial results, he purchased some which he sent back to America, advising it as a substitute for morphine. According to the story, he is thus given credit for introducing the wine of colchicum into this country. Through the courtesy of Dr. George Minot I have obtained " The Miscellaneous Works of Benjamin Franklin," published in 1809 (30), and Pepper's book " The Medical Side of Benjamin Franklin," published in 1911 (31). In Franklin's writings, which are dated 1780-85 while in France, we find evidence of his humorous attitude toward his affliction, even though he had a complicating large bladder stone which troubled him greatly. Although some do not bear on treatment, these are some of his letters. In October 1780, most probably during an attack, we find a dialogue between Franklin and the Gout, in which " Gout " scolds Franklin unmercifully for his leisure, eating and drinking. During one of his attacks Franklin was bled freely and purged two or three times. In the American Philosophical Collection there is a letter from Franklin to Mme. Brillon, written about 1781, in which he denies that excessive indulgence in sexual pleasures is the cause of gout, as he

had no gout when he was a young man (sic). That the idea of excretion of bad humours from the body still prevailed is seen by a letter to a Mrs. Mary Hewson, dated Sept. 7, 1783: "I have been lately ill with a Fit of the Gout, if that may indeed be called a disease. I rather suspect it to be a Remedy, since I always find my Health and Vigour of mind improv'd after the Fit is over, etc." Aside from the bleeding and purging already mentioned, we do find two or three mentions made of treatment. In a letter written to his nephew Jonathan Williams, May 19, 1785, Franklin writes: "My Disorder has its good and bad Days. At present I am tolerably affected by it; but sometimes the Pain is hard to bear. I wish you to buy and send me Blackries' Disquisitions on Medicines that dissolve the Stone. You will find it at Wilkie's, No. 71, Paul's Churchyard, etc." For his bladder stone, Franklin used, "going to bed, and the Bigness of a Pigeon's Egg of Jelly of Blackberries." In another place we find that one Benjamin Vaughan had recommended hemlock to Franklin for his stone, but "I have tried so many things with so little effect, that I am quite discouraged and have no longer any faith in remedies for the stone.—Opium gives me ease when I am attacked by pain," was his reply.

Another victim of the gout was Thomas Sutton, who in 1813 wrote a book on "Delirium Tremens, Peritonitis and Gout" (32). There is no association between these three diseases, he simply wrote an essay on each one, and thus this book may be said to be one of the early systems of medicine. He considered gout to be a curable disease, and food played little, if any, part in its cause. His contribution to treatment was the introduction of elaterium as a substitute for colchicum. The "elaterium" is a plant of southern Europe, with a fruit like a cucumber, the juice of which is a violent cathartic to be used particularly in dropsy. However, this remedy in the treatment of gout did not gain much favor. Sutton was a strong advocate of drastics, as is shown by his directions for purging. At 6:30 in the morning he ordered that 8 grains of calomel be taken. Two hours later, tincture of senna and vitriolated magnesia was prescribed. He ordered more senna and magnesia at 2:30 in the afternoon, and at 7 o'clock at night two more doses of senna and magnesia. Then at bedtime he gave two ounces epsom

salts with 5 ounces of infusion of senna in divided doses. One valuable contribution was his doubt of the idea that if the gouty substance were not allowed to escape from the body, it would lodge in internal structures and cause deleterious effects, the " irregular " gout. These other manifestations, as headache, chest pain, stomach upsets, he considered to be concomitant diseases not necessarily caused by the gout. And we have long since learned of the frequently associated vascular disease, hypertension, renal disease and renal colic in patients with gout. And with their vascular disease, many of them have angina pectoris too.

Quack remedies for gout were now being introduced almost by the dozen, lactucarium, digitalis, Portland powder, eau medicinale, Wilson's tincture, Reynold's specific, Laville's tincture and many other secret preparations (33).*

Duncan, in 1816, writing on consumption (34), introduced a soporific, the white juice of the common garden lettuce which he called " Lactucarium." In the appendix of this book is a letter written to Duncan by a practitioner, who had used this extract in several cases of gout with apparently good results. There have been few references in the literature to this medicine. In regard to the other proprietary preparations mentioned, a discussion can be brought out best by telling you of the works of Charles Scudamore, who wrote several important treatises on the subject of gout (35). In 1819 he published a " Treatise on the Nature of Gout and Rheumatism." In this he criticized the loose classification of earlier writers, and early goes into a discussion of wine in gout. " The patient," he says, " influenced only by the suggestions of his fears, anxiously desires to fix the wandering gout in his extremities; or with this view drinks brandy or Madeira. From the depression which he occasionally feels, he seeks the false relief procured by stimulating cordials; and produces a state of intoxicating excitement at the expense of injury to his constitution." He cites statistics to show that the gout in England was not as common as supposed in that only two of 2200 patients in the Royal Infirmary in

* Drake used a secret preparation, probably of vegetable composition, and his reluctance to divulge the ingredients caused his contemporaries to brand him an " Empirick ".

the 25 years 1775-1800 had the disease. In this work of 1819 Scudamore also suggested the importance of directing treatment to the constitution rather than locally. For this he stressed diet, bleeding, cupping and leeches, catharsis and digitalis, the latter giving great improvement in some cases. For local treatment there was the " Scudamore Mixture," consisting of one part alcohol and three parts mixtura camphorae. Occasionally he advocated a muriatic acid bath locally. During convalescence he gave iron to build up the blood, one-half pint ass's milk every morning and advised a daily cold salt water bath to the feet to be followed by massage sufficient to give a glow to the skin.

Although in his 1819 publication he tended to frown on colchicum, inasmuch as he thought its use may bring on an attack of gout, in 1825 he wrote another treatise, this time on " Observations on the Use of Colchicum." This was a real contribution in that he analyzed the secret drugs already spoken of. In 1785 a French army officer, Monsieur Husson, introduced the " eau medicinale " into France as a treatment, not for gout, but for all kinds of ailments. It was there short-lived because the French government soon forbade its use, and by 1810 it had reached England, and there as a " specific for gout." In 1815 Wilson's tincture, and in 1820 Reynold's specific and Laville's tincture were introduced. All these secret preparations, Portland powder, eau medicinale, Wilson's, Reynold's and Laville's medicines Scudamore analyzed and found them all to contain *COLCHICUM*. He then made three preparations of colchicum, the wine from the root, the tincture from the seeds and an acetic acid extract, which he assayed, using dogs. Then administering them to humans, he found the acetic preparation to be the best, also the least toxic. With it he frequently gave quinine sulphate since he thought it produced better results. He strongly cautioned against the over-use of colchicum in that paralytic symptoms may result. Scudamore was another to believe that lung, stomach, heart and head complications may be disease entities in themselves and not due to gout. He adds " Whatever the existing complicating disorder may be, it should be treated with very little modification, according to the actual symptoms and not upon any fanciful theory regarding the gout." For premonitory symp-

toms he used mercurial purges, but during an attack he seldom gave mercury as "it may cause mercury fever." He is one of the few who mentions and advises the use of Duncan's lactucarium.

Three other physicians of this period who should be mentioned were William Cullen, his teacher Herman Boerhaave and Sir Everard Home. Cullen stressed the changes in organs other than those chiefly or most strikingly affected during an attack. He included gout among the neuroses (36). Boerhaave (37), along with Hoffman, was one to recommend burned broom ashes dissolved in water or Rhenish wine for the treatment of gout. It was Sir Everard Home who helped to make popular the use of colchicum. Early in the nineteenth century he introduced into use a vinous infusion, made by macerating two pounds of fresh roots with 24 ounces of sherry wine, to be heated for 6 days before use. This later came to be considered an unpalatable preparation, and it fell into disuse.

We have seen it not infrequently that when a new drug comes to be known, by some it is made a panacea. So it was with colchicum. In 1820 Charles Haden wrote a treatise on the use of colchicum as a substitute for bleeding in chronic disorders connected with the heart and arteries (38). This book enumerates the experiences of his father, also a physician, and himself, using colchicum chiefly for its purgative action. Of course, he states, they had many failures in trying to cure all diseases with it. Nevertheless, he recommended its use particularly in pneumonia; also, to control the actions of the heart and arteries in place of digitalis; in rheumatic inflammatory fevers, pleurisy, catarrhs and influenza, puerperal fever, consumption, inflammatory fevers of horses (his father had cured a horse with colchicum); fevers of children, lumbago, inflammations of the breasts and nipples, febrile excitement in pregnancy; skin diseases, particularly pustular and scaly eruptions, psoriasis, erysipelas and tuberculous skin lesions. According to the Hadens, colchicum was also good for bursitis, hysteria, complete heart block, quinsy sore throat, painful whitlow, edema of varicose veins, toothache and boils. In a similar vein one might mention here a later work by J. M. Maclagan (39), written in 1852, on colchicum, where he lists many of the same diseases given by Haden, with the

addition of rheumatic fever with its heart complications, urticaria, leucorrhea, tetanus, cholera, Bright's disease and uremic coma.

In the meantime the chemists also became interested in colchicum and in 1820, Pelletier and Caventou (40) first isolated the alkaloid "colchicine," but it remained for Geiger (41), 1833, to establish its nature. It was thought at first that colchicum caused an increase of uric acid excretion from the body and in 1860, William Gairdner (42) cast doubt on this belief. The general tone of Gairdner's writings is against colchicum, but he attributed the action of the drug to its ability to regulate the action of the heart and thus to give a more even distribution of blood in the systemic and pulmonic capillaries.

In that it appeared at this time, there is a large illustrated book that may be of historic interest to you. Perhaps you will recall that in 1683 Sydenham had clearly differentiated gout from the various forms of rheumatism, and yet here is this book by Robert Adams (43), published in 1857, in which gout and chronic arthritis are still confused. It contains beautiful illustrations of hypertrophic and atrophic arthritis, but none of gout, so the title "Rheumatic Gout and Chronic Rheumatic Arthritis" is somewhat misleading.

Before considering the extensive writings of Sir Alfred Baring Garrod, a new method of cure for gout (44) should be mentioned. J. W. Foakes declared that mercury and colchicum both were harmful, colchicum particularly so, because he thought its use changed acute or subacute gout to a chronic form. His "new method of cure" consisted in the administration of rhubarb, along with magnesia and castor oil. If he were called upon to treat a patient with gout, on the first, second and third days of the attack, he would give a mixture of powder of Turkey rhubarb and calcined magnesia three times a day. On the first and third nights he advised a castor oil emulsion. If the urine was "high colored," he would give a draught of spirits of nitrous ether, cinnamon water and distilled water every night until the urine became normal. A nourishing diet to "uphold the constitution" and medicated cotton to the joints affected completed his treatment. This "method" was supposed to neutralize the cause of gout, prevent its return, and it was

boasted that it did not injure the patient's constitution. In his denouncement of mercury and colchicum he went so far as to experiment on himself with the drugs; he took large doses of both medicines, he soon experienced some joint pains which " were like the gout," so he concluded that the use of colchicum and mercury could cause the affliction.

Then in 1876 we find the extensive work on " Gout and Rheumatic Gout " by Sir Alfred Baring Garrod (1819-1907) (45). In his interpretation, " Gout is a constitutional, often inherited, inferiority of the kidney to excrete uric acid, an inferiority which does not extend to the excretion of other waste products." As already mentioned, Forbes' work in 1787 showed an excess of uric acid in the blood in some individuals during an attack of gout. Now, nearly a hundred years later, Garrod confirmed this and showed also that in the intervals between attacks no such condition existed. In addition, to aid the physician in making a more accurate diagnosis of gout, Garrod introduced his famous " string test " for uric acid in the blood. Into a shallow dish he would place approximately 4 cc. of blood serum and six drops of moderately strong acetic acid. Into this he would lay an ordinary piece of fiber. This he would place on a mantel piece for 36-60 hours for evaporation to take place. The rhomboid crystals of uric acid would be found adherent to the fiber. Curiously enough, as he showed by chemical tests, unless there was an excess of uric acid in the blood, the crystals would not be present on the fiber. But even with such a test, it seems he was confusing gout with the other forms of rheumatism as he speaks of the " thousands of cases of gout which he treated." However, Garrod did some careful experimental work with colchicum on dogs, showing that the meadow saffron does not increase the uric acid output in the urine; neither is it always successful in producing a diuresis. Another thing for which we must remember Garrod is that he was one of the first to remove tophi surgically in the treatment of that disease. Sometimes, too, he would dissolve them in situ with a mixture of hydrochloric acid and turpentine. It was Sir Garrod who introduced lithium carbonate in the treatment of gout, as he showed that a tophus, taken from a phalanx, placed in a pan of lithia would dissolve. He

avocated the treatment of the individual more than the use of drastic measures against the disease. As opposed to Foakes, he felt that one should give calomel or colocynth and colchicum together as much better results would be seen. That the " shot-gun " prescription was still holding its own may be seen by his favorite mixture for chronic gout:

Cinchona bark	8 parts
Guaiacum	6 "
Ammonium carbonate	2 "
Potassium citrate	2 "
Potassium iodide	1 "
Colchicum corm	1 "

Sig: 40 grains a day in water.

Inasmuch as his experiments with colchicum showed no increased uric acid output he advocated the use of alkalies, as phosphates and citrates, which, according to some of his research, did cause uric acid to be excreted from the body. Garrod, too, wrote at considerable length on the use and abuse of mineral waters in gout. He discusses each water separately: Vichy is good, if the gastro-intestinal tract is sluggish; Wiesbaden water, although it may bring on an attack, is good, if the circulation is sluggish; Baden-Baden contains lithia, so it is very good. Carlsbad water is good in cases with engorgement of the liver, but it is contraindicated in heart disease. The Wildbad, Teplitz, Gastein, Ragatz, Pfeffers and Buxton waters produce their beneficial effects by their heat and not by their ingredients. Finally, the Aix-la-Chapelle is good water for the gout in that it contains sulphur.

Time has not permitted giving any of the details on wine in gout, except to state from time to time that for the most part its use was forbidden. The length at which it is discussed in the literature, the numerous views held regarding its use and abuse could hardly be exaggerated. Some wrote that red wines, sweet wines, thick wines, French wines and various seasonal wines were extremely harmful in gout; others thought those were beneficial and that one should avoid dry wines, white wines, clarets and Rhine wines. Garrod is another, who also discriminates on alcholic bever-

ages; port wine, strong sherries, madeira, moselle and champagne are strictly forbidden by him. To be allowed in his diet are weak brandy, whiskey, unsweetened gin, Amontillado sherry and Manganilla sherry.

On the subject of wines we find a treatise on "Wine in the Different Forms of Anemia and Gout," written by M. E. Begin and translated from the French in 1877 (46). The title sounded most interesting, but actually it is a pamphlet advertising the St. Raphael French wine. He discusses Sydenham's aphorism on wine in gout and completes his discussion by advocating the free use of wines rich in tannins, that is, free from tartrates. "As a general rule," he states, "wine is useful in all atonic forms of gout, when the functions are languid, and when that special condition of the economy exists which may be justly designated under the term gouty anemia." In his discussion of atypical gout we read: "When the heart is seized with retrocedent gout, there is usually a feeling of constriction in the chest, violent palpitation, intense anxiety and difficulty in breathing, very small thready pulse and other signs of syncope." Considering that date, this seems like a fairly good description of angina pectoris, or perhaps coronary occlusion.

But to continue with the subject, one of our former patients with the gout was kind enough to lend this book from his library, written by Morris Longstreth of the Jefferson Medical College, 1882. In this book, "Rheumatism, Gout and Some Allied Disorders" (47), Longstreth writes that heredity plays very little part in gout. And his description of the affliction is very classical: "Screw up the vise as tightly as possible, you have rheumatism; give it another turn, and that is gout." He used colchicum very freely in treating the disease, and he is one of the few writers who outlines definite contraindications to the drug. To his mind there were three: (1) irritability of the digestive organs, (2) fatty or other lesions of the heart, and (3) kidney disease.

It is from this time on, about 1880, that we find chemistry again attempting to solve this yet unsolved problem of gout and to produce new remedies for its treatment. In 1888, A. Haig of England, a sufferer from migraine, wrote his doctor's thesis on "The Formation and Excretion of Uric Acid" (48). He used himself

as a test subject, for he found, if he treated his migraine as one would treat the gout, he was relieved from that affliction. Haig felt that colchicum may have a direct action on nerves, or it may tend to lessen inflammatory action, but he demonstrated, as was suggested by Gairdner and later shown by Garrod, that colchicum does not increase the output of uric acid from the body. He thought he demonstrated that all foods and drugs known to be harmful in gout prevented uric acid excretion and caused retention, as acids, wines, beers, meats, lead and iron. But it has been shown subsequently that his experimental work was not beyond reproach.

It was in 1890, about the time that the oral aministration of piperazine came to be used in gout (60), that Jacoby (49) studied and published the pharmacology of colchicum and colchicine and showed that neither increased the excretion of uric acid. In his discussion of the toxic manifestations he pointed out the anuria resulting from colchicum poisoning.

Following the demonstration in physiologic chemistry that hippuric acid is formed by a synthesis of benzoic acid and glycocoll by the kidney, Weiss (50) in 1898 asserted that after eating fruit the uric acid of the urine is decreased and the hippuric acid increased. He sought an explanation in the presence of China acid, tetraoxyhexahydrobenzoic acid, in the fruit, assuming that China acid in the body becomes changed into benzoic acid and so prevents the synthesis of uric acid from glycocoll. Because of this idea of Weiss', a large number of "gout specifics" containing this China acid combined with other drugs, e. g., urosin (China acid and lithium), sidonal (China acid with piperacin), urol (China acid with urea), chinotropin (China acid with urotropin), and "new" sidonal (China acid anhydrid) appeared on the market. It was used for a while, and to quote Barker (25), who writes about it, "if China acid affects the symptoms favorably at all, we do not known how it does so; it has been suggested that, being tetraoxybenzoic acid, it is more or less allied to salicylic acid and so may, like the latter, exercise a painstilling effect."

Perhaps it was because of other chemical studies that China acid was not used longer for it was in this period that "cinchophen" was introduced. In 1887, two German chemists, Doebner and

Giesecke (51) discovered the substance quinoline-carbonic acid, which was named "atophan." It simply remained an interesting chemical substance until 1908 when Nicolaier and Dohrn (52), working with cinchophen in dogs and normal men, found that it increased the uric acid excretion in the urine. They suggested its use in gouty subjects, but it remained for Weintraud (53) in 1911 to put it to practical application in gouty cases, to note the prompt relief of symptoms in these individuals and to show that it increased uric acid excretion during attacks. In the same year Zuelzer (54) wrote that atophan was so specific for gout that he suggested its use as a therapeutic test in the differential diagnosis of the various arthritides. He used it in 14 cases, 12 of which obtained prompt relief from pain. Although the literature would have one believe that "neo-cinchophen" was introduced as a drug in the treatment of gout and other joint pains by Chace, Myers and Killian in 1921 (55), we find that Zuelzer in 1911 mentions "methyl-atophan" and the good results he had with it in treating gouty subjects.

Before discussing the recent advances in gout made by our late Dr. Folin, it should be mentioned in passing that in 1910, a German physician, Gudzent thought he showed that radium D emanations decreased the uric acid content of the blood and made tophi of the ears become smaller (56). It might be thought that this treatment would have become widely used, but it was soon shown that he was erroneous (57), and we find no more references to such treatment in any of our modern texts.

Of course Magnus-Levy in 1899 (58) had made determinations of the uric acid in the blood, but it was in 1913 that Folin and Denis (59) perfected what was considered to be the most accurate method for quantitative blood uric acid determinations, and which has consequently allowed more accurate studies to be made of the disease. Then in 1924, Folin, Berglund and Derick (60) made an extensive study of the metabolism of uric acid and showed that its abnormality in gout consists in "an increased destruction of uric acid," that is to say, the patient with gout tends to destroy more and to excrete less uric acid than the normal person. But still the problem is not solved.

Both cinchophen and neo-cinchophen grew in popularity until 1922 when Schroeder (61) first drew attention to the toxic effects of cinchophen and published a review of 17 cases. Numerous reports in the British literature followed (62) and Sutton (63), Reichle (64), and Rabinowitz (65) in this country issued a strong warning regarding their use in alleviating joint pains, both in gout and in other forms of arthritis. Although cinchophen and its derivatives are still administered to-day, the possible toxic effects are universally appreciated, which means that the drugs are being used less frequently and with more care.

There is since then a great deal of literature on the subject of gout, but two things more should be mentioned. First is the extensive study by Hanzlik (66), published in 1926, which is a monograph on the actions and uses of salicylates and cinchophen in medicine. For gout, all that need be said is that it has been shown that the salicylates apparently give a greater excretion of uric acid than does cinchophen, but the salicylates often do not give the relief from symptoms that atophan does. The second is, that although uric acid has been fed to patients with joint pains in an attempt to establish a diagnosis of gout, Lockie and Hubbard (67) have recently advocated the use of a high fat diet in gout in order to bring out the manifestations of the disease, much the same as we use a low salt diet to bring out the manifestations of a suspected case of Addison's disease. Inasmuch as a high fat diet increases the symptoms, they advocate a diet low in fat in the treatment of the disorder.

Now suppose that by such a high fat diet we establish a diagnosis of gout, what do we do? We put the patient to bed, give morphine for severe pain, a nourishing diet, advise abstinence from alcoholic beverages, the avoidance of constipation (mild purging), and during the attack we give tincture of colchicum and apply local dressings. In the intervals we advise modest living, the prevention of corpulence, with coffee, tea, alcohol and meats limited or even interdicted, gentle exercise, and we may give some cinchophen or neo-cinchophen. If the individual is sensitive to those drugs, we give salicylates. Since toxic effects are our only definite evidences of sensitivity, it is wise to use no cinchophen or cinchophen deriva-

tives. We may bleed the patient, if he has appreciable hypertension and cardiac failure. About the only things we would not do are "cupping, fancy poultices and pewking." Even spa treatment is used. Leaving aside then the fanciful ideas and superstitions, practised even as late as 1800, one can see that our present treatment of gout includes some of the practices of Hippocrates, Galen, Alexander Trallianus, von Stoerck, Sydenham and many of the others. Comparing this with our other rapid scientific advances in modern times, the treatment of gout certainly has been "slow progress in medicine."

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Gout. Changes in Symptoms and Purine Metabolism Produced by High Fat Diets in Four Gouty Patients. J. A. M. A. 104: 2072; 1935.

JOHN EBERLE

A Pennsylvania Dutch Pioneer in American Medical Education *

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The first Swiss exiles to seek refuge from religious persecution settled in Lancaster county about 12 years before the arrival of Wm. Penn and the foundation of Philadelphia. Augmented, later, by similar emigrants who were encouraged by the benevolent patronage of the first Proprieter, the nucleus was formed from which, in a large measure, the so-called Pennsylvania Dutch are descendent. Whether John Eberle was born in Manor Township, Lancaster County, Pa., in January 1788, as his contemporaries believed, or on the 10th day of the month previous (December, 1787) as was declared by that searching medical historian of the Middle West, Dr. Otto Juettner, there is no questioning the fact that the subject of this sketch was one of the " Plain People."

The German idiom and accent and the peculiar superstitious tendency of this people clung to Eberle throughout his life. He was a direct descendant of Dr. Hans Heinrich Neff, immigrant from Switzerland, first practicing physician in Lancaster County and antecedent of a worthy line of Pennsylvania Dutch medical practitioners. His father was a blacksmith, of whom the local Historian, Rupp, stated that he was a peerless genius in steel and iron, a natural mechanic and that he manufactured bayonets during the Revolutionary War not inferior to the Damask blade. This leads me to believe that this is the same John Eberle who, on Dec. 5, 1777, on the application of William Henry Gingerich, was excused from going to camp in case he continued to work at making arms.

How the boy acquired his excellent education with the limited means then and there available is a mystery. Even in childhood he must have been possessed of that avidity for books for which he was noted in later life. The industrious inhabitants of this county

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as a rule looked upon reading as being an excuse for laziness, and then, as now, laziness with them was a mortal sin. Nevertheless, there were not lacking those who recognized the value of scholarship, and tradition has it that Nathaniel Ellmaker, with friendly benevolence, encouraged the lad and voluntarily aided him in acquiring a medical education.

While still in his teens, John entered the office of Dr. Abraham Carpenter. This revered country doctor was a descendant of Heinrich Zimmerman, one of Lancaster's pioneers and practiced medicine in that city during the first quarter of the 19th century, acquiring considerable reputation from being the only surgeon of his day who had performed the supra-pubic or high operation for stone in the bladder. Then, probably attracted by the fame of Dr. Benjamin Rush who was at that time Nestor of medical instruction in the youthful nation, Eberle entered the regular "three courses" (terms) at the University of Pennsylvania, the parent institution of American Medical Schools. In conformance with custom he entered the office of Dr. Joseph Klapp who was his preceptor.

Three years were thus diligently occupied in study under such notables as Rush, the "Sydenham of America," Philip Syng Physick the "Father of American Surgery" who was just at that time embarking upon the professorship of surgery with the zeal of a new occupant of the chair of surgery, and Benjamin Smith Barton, native of his own Lancaster County, an eminent botanist whose name has been perpetuated with the floral honor of "Bartonia Decapetala." Dr. Barton is said by Carson to have acquired his skill in drawing from the instruction of the ill-fated Major André, who was a prisoner of war at Lancaster. The instructions of these inspiring sons of Paeon were well remembered by Eberle and often quoted in his later prolific writings.

Graduating among a class of 63 in 1809, just a few months within the age requirement, at 21 he took his M. D. degree with a splendid thesis on "Animal Heat." Armed with this diploma he began the practice of medicine at the Four Mile Tavern (previously known as Hess' Tavern) on the Columbia and Lancaster Turnpike. This location should not surprise you if you but recollect that at this period taverns were quite respectable institutions, owned and man-

aged by the most influential class of people, where social and political destinies were made and broken.

About two years later (1811) we find that "Billy Greer, one of Lancaster's early publishers, moved his printing office to Columbia, Pa., and occupied part of Dr. Eberly's dwelling at the Southeast corner of Second and Locust Streets." Shortly afterward, moving to Manheim, he married Miss Salome Sebrick, his constant companion throughout the economic trials and tribulations of the whole of his life. Settling down to the everyday practice of a country doctor, he was successful here and was well liked for his plain and modest demeanor.

In 1812 the "Second War of Independence" began and the unsettled young doctor, commissioned as a regimental surgeon in the Lancaster militia, saw active service in the Battle of Baltimore in September of 1814, when the gallant defense of the American forces discomfited the British and forced their retirement. It was during this critical engagement that the "Star Spangled Banner" was written by Francis Scott Key while on a British ship effecting the release of his intimate friend, Dr. William Beanes, practitioner of physic and operator of a grist mill in Upper Marlborough, Maryland, and one of the founders of the Medical and Chirurgical Faculty of Maryland.

Eberle, in his textbook on the Practice of Medicine, made several allusions to the diseases occurring among the soldiers at this time. "During the autumn of 1814" he wrote, "one fourth, perhaps of the four regiments encamped near Baltimore, were affected with intermittent and remitting fever in the month of September.—A week after the cold weather set in (November), dysentery and diarrhea began to appear abundantly and in the course of three weeks more there were but few cases of intermitting or remitting fever, but more than 800 cases of dysentery." What a busy time it must have been for the young army surgeon, with malaria and typhoid thus successively decimating the rank and file.

Returning to Lancaster, after the war, he tried again to establish a medical practice, but already imbued with the irresistible urge to write, he assumed the editorship of a German political paper during a hotly contested Gubernatorial election which was nearly his undoing.

Honest Dr. Eberle was no match for the wiles of unscrupulous politicians and was quickly ruined medically and financially. Up to this point he had had some medical practice. In the publications of the Lancaster County Historical Society there is a note that the will of George T. Ross, late Colonel of the 44th regiment, among other things stipulated that "My friend and physician, Dr. Eberly, prepare my body to be immersed in a hogshead of strong rye brandy and that said hogshead, containing my body, shall be conveyed from Lancaster to New Orleans." This, by the way, was not an unusual method of embalming in those days. After the famous battle of New Orleans, the bodies of the British leader, Parkenham, and three or four other general officers were sent to England in casks of rum, which is possibly the origin of the topers song "and when I die, pickle my bones in alcohol."

Another note in the same publication informs us that acknowledgments were tendered by the Female Benevolent Society of Lancaster to Drs. Eberle, Carpenter and Humes for their attention to the different patients recommended to their care. Dr. Carpenter, as already noted, was his former preceptor in Lancaster. Dr. Humes was a staunch friend who attended the University of Pennsylvania while Eberle was still a student there. Before taking up the study of medicine, Samuel Humes was treasurer of the city of Lancaster. He enjoyed a large and successful practice in this town, was active in the formation of the first medical society here and was president, during the first four years of the existence of the present society, in forming which he was likewise largely instrumental. Among Humes' successful pupils were Dr. John L. Atlee and Henry Carpenter. On the third of March, 1826, when Eberle was rising on the crest of his meteoric fame, the members of the medical fraternity and a number of other gentlemen from Lancaster gave a public dinner to Dr. Eberle in the old court house; Dr. Samuel Humes officiated as president and Frederick Muhlenberg as vice-president. This was the solitary tender of friendship and honor, insofar as I am aware, that was ever accorded our hero during his entire career, and even then must have been an embarrassing ordeal to the shy, retiring and unsocial scholar.

During his brief establishment in Lancaster, in addition to his

disastrous essay into the mad whirl of politics, his duties were not too arduous to prevent his contributing several excellent articles to current medical journals. There is also an interesting translation of "Ebeling's History of Pennsylvania" from the German into English in Eberle's excellent handwriting, now deposited at the Pennsylvania Historical Society, which was probably executed at this time.

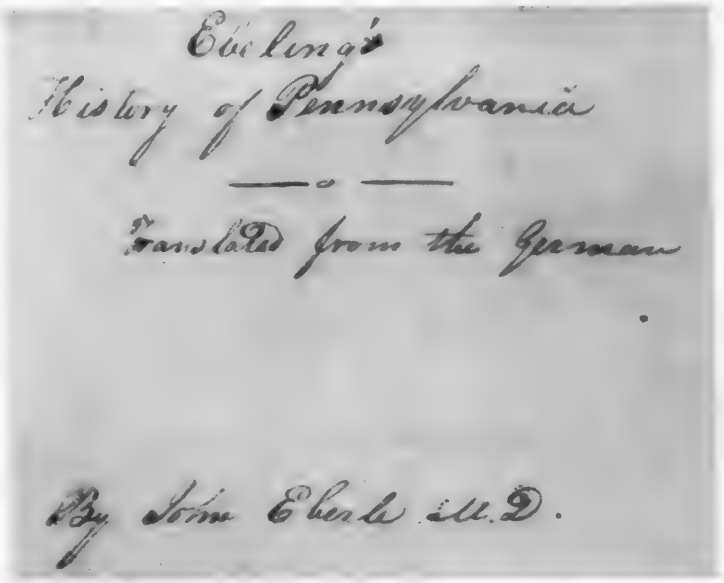
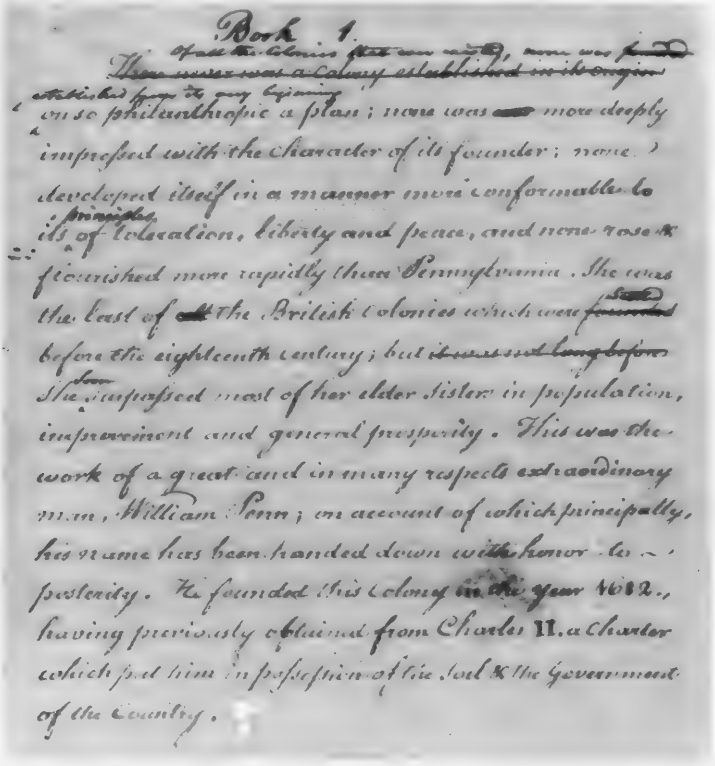

Eberling's
History of Pennsylvania
Translated from the German
By John Eberle M.D.

Figure 1. Title page of Eberle's translation of Eberling's History of Pennsylvania in his own handwriting. Du Ponceau published an English translation of the same work in Hazard's Register of Pennsylvania.

(Courtesy of the Penna. Historical Society.)

Bankrupt, but still suffused with the restless spirit of youth (he was only 29 at the time), he moved with his substantial family to Philadelphia. This was in 1817 when the Quaker City was the cultural and political centre of the country, still the capitol of the bustling new nation and the largest city in the union. The Philadelphia Medical Society was at that time the open forum of expres-

sion free to all comers and the subject of our paper was quick to take advantage of the only means at his disposal, at this time, of airing his growing medical erudition. The meetings of the society were held during the sessions of the medical department of the


Book 1.

[illegible] was a Colony established on the origin
on so philanthropic a plan; none was more deeply
impressed with the character of its founder; none
developed itself in a manner more conformable to
its principles of toleration, liberty and peace, and none rose &
flourished more rapidly than Pennsylvania. She was
the last of the British Colonies which was founded
before the eighteenth century; but it was not long before
She surpassed most of her elder Sisters in population,
improvement and general prosperity. This was the
work of a great and in many respects extraordinary
man, William Penn; on account of which principally,
his name has been handed down with honor to
posterity. He founded this Colony in the year 1682.,
having previously obtained from Charles II. a Charter
which put him in possession of the Soil & the Government
of the Country.

Figure 2. First page of the translation, likewise in Eberle's hand.

University of Pennsylvania on Saturday evenings at half past seven. Medical students crowded in eager to hear the sage discussions of such notables as Dorsey, Parrish, Rhees, Chapman, Eberle, McClellan, Hodge and others. Eberle was not an infrequent participator in the debates; he spoke to the point, intelligibly and with great force,

armed with the assurance born of full and accurate knowledge. His outspoken manners and lack of social grace may have been factors, however, in powerful professional enmities which he encountered. This, and constant penury, weighed heavily on his mind. On the other hand, recognition of his profound learning succeeded in acquiring for him also many friends and admirers, chief among whom was George McClellan.

McClellan came of Scotch and English ancestry. His grandfather was General Samuel McClellan of the Revolutionary War. His son was General George B. McClellan, commander of the army of the Potomac during the Civil War. Thus, the doctor, himself of a warlike strain, was bold and fearless. He was born in 1796, eight years the junior of Eberle, and, graduating from the University of Pennsylvania in 1819, at once entered into a brilliant surgical career, attracting a host of private pupils. Two years later, he teamed up with Dr. Eberle and instituted lectures at the old Appolodorian Gallery on Walnut Street. As editor of the American Medical Recorder, a successful journal begun in 1818, Eberle was now forcing recognition of his superiority. In 1818, he also had published a tiny book for the use of his students, dedicated to his friend and fellow Lancastrian, W. P. C. Barton, on "Botanical Terminology." Four years later, thanks to the munificence of the author's loyal friend, James Webster, his opus majus appeared, entitled "A Treatise of the Materia Medica and Therapeutics." It met with immediate success and within a year the medical son of the Pennsylvania Dutch plain people was a famous man not only in this country but in Europe to which the aspiring young nation still looked for approbation. This work was conceded to be the very best on the subject ever issued from the American press. It was translated into French and German and, passing through four editions during his lifetime, found universally popular use. More than half a century later, Waring, in his Bibliotheca Therapeutica, New Sydenham Society Volume 78 of 1878 wrote: "Eberle's work has long been held in deservedly high estimation on both sides of the Atlantic. It contains a large amount of therapeutic information drawn from reliable sources which the author, in many instances, supplements by the record of his own personal observations. For several years it has been one of my most esteemed works of reference."

That year, 1822, saw him elected a corresponding member of the Medical Society of Berlin in Germany and three years later the Academy of Natural Sciences made him an honorary member.

The private school of the skillful McClellan and the scholarly Eberle was eminently successful, attracting large groups of students and doctors. Before this, University opposition had successfully quashed the futile attempt of Dr. W. P. C. Barton to form a second medical school in Philadelphia. When, in the Spring of 1820, a student, John G. Whildin, who was about to graduate at the University, was allowed to do so only on condition that he should expunge certain references in his thesis favorable to McClellan, that fiery Scotchman was stung to the quick and determined to start an opposition school. At first he was successfully checkmated by the powerful elements opposed to him; but, probably taking the example of a similar expedient used in opening a medical school in New York, a letter was sent off over the signatures of Eberle, Klapp and Green to the trustees of the literary Jefferson College at Canonsburg, Washington County, Pa. (now Washington and Jefferson College), which persuaded them to accept a plan for the establishment of a medical department at Philadelphia. This school opened with a class of 107 students. When the first class of 20 was ready for diplomas, the trustees of the University of Pennsylvania, attempting to stamp out the supposed injurious competition of the new medical college, memorialized the legislature at Harrisburg to prohibit the issuance of degrees. McClellan, however, was not caught off guard and the following is a contemporary account by Dr. Atlee of his wild ride to Harrisburg:

"In the spring of 1826 four young medical students were assembled in the office of Dr. John L. Atlee, of Lancaster, for the purpose of forming a quizzing club. Quietly engaged in our deliberations, we were suddenly disturbed by a startling rap at the door. In a moment a young man, breathless and excited, bounded into our midst. He was a stranger to us, but our preceptor, soon entering, recognized him as a classmate and introduced us severally by name. His features were strongly marked, his gray, penetrating eyes deeply set, and his tongue and body were in constant motion.

He seemed to be the embodiment of strong will, indomitable energy and determination, and every action of his small wiry frame bore the impress of a restless and vigorous brain. At the door stood a sulky with a sweating, panting horse, which he had driven without mercy over sixty miles that very day, having left Philadelphia the same morning. His horse could go no further. He *must* have another. I never saw a better illustration of that passage in Shakespeare where Richard the Third exclaimed—' A horse! a horse! My kingdom for a horse!'

" My preceptor's horse and sulky were soon at the door and at his service. Hector, a noble animal, did his work well that momentous night, and before twenty-four hours had elapsed after he had left Philadelphia, this young M. D. (mad doctor) was hammering at the door of our legislature! His mission in Harrisburgh was soon accomplished, and, as before, he arrived in Lancaster that night. It was very dark, yet, in spite of all remonstrances, he ordered out his horse and off he flew for Philadelphia. He had driven but a few miles, when, while dashing along, he upset in the highway. Here was a predicament from which he could not extricate himself without assistance. It was night, and the honest country people were in bed. After repeated halloos a farmer made his appearance with a lantern, which threw some light on the dismal scene. Quite naturally, the farmer began to inquire into all the particulars of the accident instead of at once attempting to right the difficulties. " Come, come, good friend, that won't do. Let us put our shoulders to the wheel and leave explanation until another time." Things were soon put into driving order, and next day the charter of the Medical Department of Jefferson College was in the city of Philadelphia." " Need I say," he adds, " that this genius was the young McClellan? "

As one of the founders of Jefferson Medical College, Eberle filled the chair of Theory and Practice with recognized ability. He was a powerful drawing card, attracting, by his growing reputation, a large number of students. Among those was Samuel D. Gross of Easton, Pa., who was later given his start upon a brilliant teaching career by Eberle while in Cincinnati. A small lecture compend,

"Notes on Lectures on the Theory and Practice of Medicine," published in 1827 and interleaved with blank pages for the use of the students in following his course, was the precursor of this more extensive work, dedicated to his coworker and friend, George McClellan, M. D.: "A Treatise on the Practice of Medicine" in two volumes. This was not only the first original text book on the subject published in Philadelphia but it brought up to date the vast amount of medical literature which this author had at his finger tips, with personal evaluations of various controversial subjects as well as many experiences gleaned from his own practice. The demand for this book was so extensive, five editions were published during his lifetime, and a sixth in 1847, by McClellan, all of which were used by students and the profession at large in all parts of the country. The original "Notes" was also republished in a second edition in 1832 in answer to a demand for it in the West.

During his encumbency in the chair of medicine, Eberle was also required to prescribe for all the medical cases which came into the Infirmary of the Jefferson Medical College which was instituted to provide clinical material for the students. In 1830 he was transferred to the chair of materia medica. He also lectured on obstetrics at this college.

While resident in Philadelphia Eberle had a full length portrait of himself and one of his wife executed by Lancaster's most celebrated artist, Jacob Eichholtz, who was then established in Philadelphia. For these he paid the highest price yet received by the budding painter—$60.00 apiece. Unfortunately these efforts of Eichholtz's abilities at his prime are lost to us now, careful search having so far failed to locate them.

Otto Juettner of Cincinnati, Ohio, has succeeded in recovering a bust of Eberle, however, which is supposed to have been made by the renowned sculptor, Hiram Powers, but this likeness depicts none of the idiosyncrasies of his person which so affected his acquaintances.

In 1831, carried away by the dynamic influence of Daniel Drake as much as by force of financial necessity, the now famous medical educator left Jefferson to accept a chair in the Ohio Medical College at Cincinnati. It is of interest that within the year of Eberle's birth John Filson, then a medical student, was busily engaged in survey-

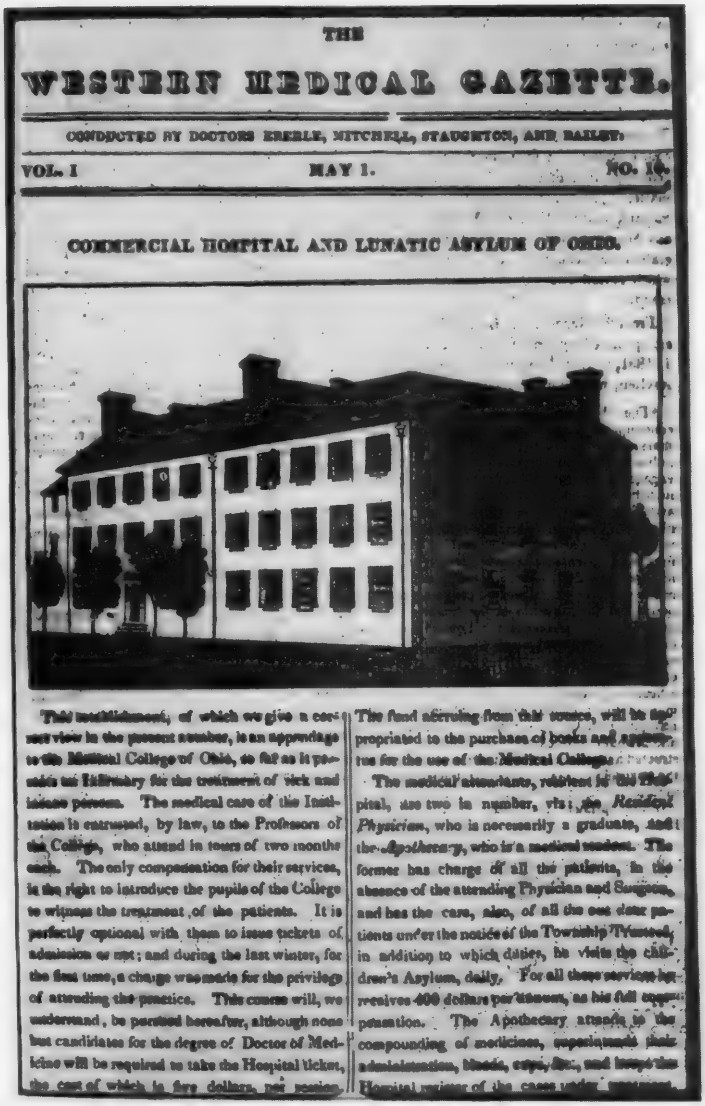
Figure 3. Bust of Eberle resurrected by Juettner.
(Courtesy of the College of Physicians of Philadelphia.)

ing the unsettled country later to be the site of Cincinnati, while close by, on April 7, 1788, Cutler and his pioneers from New England arrived at Marietta, Ohio, and there began the first settlement in that territory. While here, Eberle published in 1833 his "Treatise on the Diseases and Physical Education of Children," a book which was widely used throughout the West, and which, while not as successful as his former works, was tinctured with sufficient merit to call forth a posthumous fourth edition by his colleague, Thomas D. Mitchell. In addition to this, he was engaged in preparing for the press a system of midwifery at the solicitation of his publishers in Ohio but was prevented from consummating this project by ill health and an untimely death.

As professor of medicine, Eberle was in attendance upon medical cases at the Commercial Hospital of Cincinnati. During the cholera year of 1832, when 351 deaths were reported within the final few months of that year, our professor, in company with his associated faculty, was in constant demand by the stricken inhabitants and rendered faithful service at the hospital. The operating room of this old hospital was the scene of some of the most brilliant surgery of the day and the work of such energetic enthusiasts as Jesse Smith, Albam Goldsmith, Reuben D. Mussey, Daniel Drake, John Bell and others, published in the current journals, endowed the institution with a far-flung reputation.

The lectures on the theory and practice of medicine, as advertised in the Western Medical Gazette, took place every morning at eleven, entailing a prodigious amount of instructive work. In 1835 Eberle was an important participant of the medical convention of Ohio, working upon a committee of five attempting to obtain a lunatic asylum from the state legislature; he was also on a committee appointed to formulate a system of medical ethics.

Unsuited by nature and failing health to contend with the everlasting bickerings of self promoting colleagues at the quarrelsome Ohio Medical School and still pursued by the spectre of poverty, he left Cincinnati to assume the remunerative $4,000 professorship of practice at Transylvania University, Lexington, Ky. His advent was hailed with great acclaim and hope ran high that the presence of so illustrious a lecturer and scholar might stabilize the tottering



THE

WESTERN MEDICAL GAZETTE.

CONDUCTED BY DOCTORS EBERLE, MITCHELL, STAUGHTON, AND BAILEY.

VOL. I MAY 1. NO. 10.

COMMERCIAL HOSPITAL AND LUNATIC ASYLUM OF OHIO.

This establishment, of which we give a correct view in the present number, is an appendage to the Medical College of Ohio, so far as it provides an Infirmary for the treatment of sick and insane persons. The medical care of the Institution is entrusted, by law, to the Professors of the College, who attend in turns of two months each. The only compensation for their services, is the right to introduce the pupils of the College to witness the treatment of the patients. It is perfectly optional with them to issue tickets of admission or not; and during the last winter, for the first time, a charge was made for the privilege of attending the practice. This course will, we understand, be pursued hereafter, although none but candidates for the degree of Doctor of Medicine will be required to take the Hospital ticket, the cost of which is five dollars per session. The fund accruing from this source, will be appropriated to the purchase of books and apparatus for the use of the Medical College.

The medical attendants, resident in the Hospital, are two in number, viz: the *Resident Physician*, who is necessarily a graduate, and the *Apothecary*, who is a medical student. The former has charge of all the patients, in the absence of the attending Physician and Surgeon, and has the care, also, of all the out door patients under the notice of the Township Trustees, in addition to which duties, he visits the children's Asylum, daily. For all these services he receives 400 dollars per annum, as his full compensation. The Apothecary attends to the compounding of medicines, superintends their administration, bleeds, cups, &c., and keeps the Hospital register of the cases under treatment.

Figure 4. Scene of much of Dr. Eberle's activities during his residence in Cincinnati.

(Courtesy of the College of Physicians of Philadelphia.)

school. But fate decreed otherwise, for he soon took sick, had to be supported to and from his introductory ordeal at the overflowing opening exercises and died on Feb. 2, 1838.

At his funeral a large concourse of students and citizens gathered to pay their final respects to the celebrated professor. His remains were interred at the Episcopal Cemetery in Cincinnati, but later were moved to Spring Grove Cemetery where a monument now marks the spot.

A goodly family was left behind, evidently in straitened circumstances. In 1833, in his book on the diseases of children (p. 178), he mentions his own family consisting of eight children. One son, Richard, was graduated from the Medical College of Ohio in 1832, and a namesake of the father was among the organizers of the Ohio Medical Lyceum. This medical society met every Saturday evening during the winter in the Chemical Hall of the Medical College of Ohio. It was conducted on the plan of the Philadelphia Medical Society previously mentioned, which had proved such a powerful auxiliary to the University of Pennsylvania. A paper on some subject was read and discussed at every meeting and not only students, but also neighboring practitioners participated in diffusing the latest discoveries in the medical field.

Another son was a successful apothecary in Cincinnati but died at an early age. Another graduated at Lexington in 1838 and left for parts unknown in the West. The education of several children at Jefferson College in Canonsburg also added to the burden upon the slim family exchequer. The hapless widow was left impecunious.

Concerning the personal appearance and characteristics of this remarkable character, I can only tell you what has already been told by others. He was a man of reserve and retirement, ill at ease in the bustle of society, associating with few friends and shut up within himself even to these. I have no doubt he would be classified by the modern psychologists as an introvert. Always a student, his greatest delight was to be snugly ensconced within the private confines of his office study, free from all interruption, there to pursue the even tenor of his way. He was not fond of general practice and with his strong German accent and melancholy, unsmiling mien

impressed most people adversely. At the same time he was impractical, absent minded, but above all, honest, believing that truth and honesty would always triumph. In money matters he was as helpless as a child. Little wonder that he was haunted by poverty throughout his life.

At 35 he was considered one of the foremost American physicians. His busy pen gave evidence of exhaustive reading and testified to the carefulness with which the opinions of others upon nearly all points were evaluated. In differing with the views of others the temperate expression of his own experiences is marked by common sense and justness of conclusion.

Always courteous, never obtrusive, kind toward the younger members of the profession, without any show of professional envy, no wonder it was seen fit to include him in the group to set the standard of medical ethics for a set that was everywhere adopting the " dog-eat-dog " attitude. Had his character been more forceful, had he been more decisive in his actions, had he assumed the leadership which was rightfully his, he could have been more successful in his attempts to smoothe the many controversies among his friends. The ease with which less worthy men could affect him in his simplicity, and sway him to their own ends, led him into many difficulties from which such a benefactor of science should have been protected.

The medical students liked his simplicity and unostentatious manner and admired his scholarly attainments. When his short and dumpy figure appeared before the class there was at once respectful silence in the lecture room. Standing with his legs wide apart and his right hand resting on the table he earned the nickname of " The German Tripod." His voice was low and sonorous, his delivery slow and deliberate. He spoke to the point and sometimes was carried off and away by his subject.

In his last days the appearance of the doctor became so haggard and wan that those who saw him in Lexington for the first time mistook him to be at least 60 or 65 years of age. His fame, which flared like a rocket in the sky, gleamed brightly awhile, lighting the field, then faded away, his name unsung, his memory soon forgot.

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TEXTS AND DOCUMENTS

EPILEPSY IN AN ANONYMOUS GREEK WORK ON ACUTE AND CHRONIC DISEASES

OWSEI TEMKIN

I

In the later centuries of antiquity many physicians wrote books "On acute and chronic diseases," [1] the most important examples preserved being those of Aretaeus and Caelius Aurelianus. A further work of the same title is contained in two manuscripts, Suppl. gr. 636 and Fonds grec 2324, of the Bibliothèque Nationale in Paris,[2] of which the late Robert Fuchs published extensive parts between the years 1894 and 1903. Neither the author of the work nor the date of its composition is definitely established. Fuchs himself thought that it either hailed directly from the pen of Themison, the chief forerunner of the Methodist school, or that he at least was the source of it.[3] Diels and Wellmann, on the other hand, believed Soranus, the most famous Methodist, the source for the doxographic material,[4] which would place the treatise at a time not before the end of the second century A. D. Wellmann went even further and proclaimed Herodotus, a physician of the 2nd century A. D., as the author.[5] Herodotus, he maintained, was an eclectic and as such he made use too of Methodist sources and ideas, of which the treatise shows some definite features.[6] Although the strict Methodist character of the work can justly be doubted,[7] the authorship of Herodotus of whom we know very little, seems to me not proved.[8] It

[1] Cf. Wellmann (1), p. 140 seq.
[2] For the discovery of this work see Wellmann (2), p. 580.
[3] Cf. Fuchs in Neuburger-Pagel, p. 332.
[4] Cf. Diels, p. 102, footnote 2 and Wellmann (1), p. 140 seq.
[5] Cf. Wellmann (2 and 3).
[6] Cf. Wellmann (2), p. 596 seq.
[7] Cf. Wellmann ibid.
[8] Wellmann's arguments are largely dependent on an analysis of the therapeutic part of the Anonymus. But therapeutic procedures, since shared by many physicians and propagated in various ways, are the least convincing parallels on which to base the identification of an author. Besides, if Herodotus really was an ardent pneumatist (Wellmann, l. c. p. 598), he might be expected to quote Athenaios and Archigenes in the doxographic part of his work.

will therefore be best to place the writing into that group of ancient medical literature which stood in some way or other near to the Methodists, without strictly belonging to that school.[9] And as long as the author has not been clearly identified we had better designate him as the Anonymus Parisinus, as he has been best known in the past.

The work is divided into two parts, the first, dealing with 16 acute diseases, edited in full length by Fuchs;[10] the second with 35 chronic diseases,[11] of which Fuchs edited excerpts only.[12] The discussion of every disease is divided into three parts: aetiology, signs, therapy.[13] The aetiological part reports the explanations given by older physicians, especially Hippocrates, Diocles, Praxagoras and Erasistratus,[14] and is therefore doxographic in character. The second part pictures the clinical symptoms of the disease. The therapy, finally, prescribes a methodic cure arranged according to periods of three days (diatritos), a procedure which was favoured by the Methodists.[15]

The chapter on epilepsy is listed among the acute diseases. For its text Fuchs used the cod. 2324 since he thought it missing in the cod. suppl. 636.[16] In this, however, Fuchs was apparently mistaken, for the last part of the chapter on phrenitis which Fuchs found in the cod. suppl. 636, is verbally the same as the greater part of the treatment of epilepsy as given in the cod. 2324.[17] It seems as if in the former manuscript the beginning of the chapter on epilepsy was lost and its end added to that on phrenitis.

Unfortunately Fuchs' edition on which the following translation

[9] Celsus' On Medicine also belongs to this group cf. Temkin, p. 262.

[10] Fuchs (1).

[11] For the number of diseases cf. Fuchs (1), pp. 68-69.

[12] Fuchs (2 and 3).

[13] Cf. Fuchs (2), p. 539.

[14] Cf. Fuchs (2), p. 576.

[15] Cf. Karl Kalbfleisch in Göttingische gelehrte Anzeigen, 159, 1897, p. 826 footnote.

[16] Cf. Fuchs (1), p. 68.

[17] The congruency begins at Fuchs (1), p. 72 r 4: χρησόμεθα etc. This parallelism was apparently noticed by the editors of the Rheinisches Museum as indicated by their notes on p. 114. The use of excitants in cases of torpor and the remark that noises, strain, disagreeable odours etc. are "reminders of epilepsy," obviously refer the part in question to the treatment of epilepsy and not to that of phrenitis.

is based,[17a] is not satisfactory and in some places, therefore, the meaning is not certain. On the other hand, the chapter contains so many points of interest that it seemed justified to bring it to the attention of the modern physician.

I wish to express my gratitude to Dr. Harold F. Cherniss who was kind enough to go through my translation and give me some valuable suggestions in some of the difficult places.

II

The translation of the chapter runs as follows:

Causes of Epilepsy

Praxagoras says that epilepsy is engendered in the region of the aorta[18] by the aggregation of phlegmatic humors in it. These, formed into bubbles, block the passage of the psychic pneuma from the heart and thus the pneuma makes the body shake and convulse. And when the bubbles have disappeared, the attack is over. Diocles also believes in an obstruction in the same place and, as regards the remainder of the process, too, he is of the same opinion as Praxagoras.[19] It is true he omitted the specific cause,[20] but, in his account of the disease, he says that it must be referred to obstacles to the pneuma which were difficult to overcome.[21] Hippocrates makes the moist phlegm the obstacle and he says that the whole brain is full of fluids and that the psychic pneuma is cut off, not quite filling the nerves by which the limbs are moved. And he said that the kicking, the cessation of breathing and the spasm arose through the issue of the pneuma into

[17a] Fuchs (1), pp. 76-80.

[18] Fuchs (1), p. 76 r 8: *περὶ τὴν παχεῖαν ἀρτηρίαν*. For the identification with aorta, cf. Fredrich, p. 77.

[19] Following Wellmann (4), p. 29 I read here: *Διοκλῆς δὲ καὶ αὐτὸς ἐμφραξιν περὶ τὸν αὐτὸν τόπον οἴεται· συμβαίνει καὶ τὰ ἄλλα κατὰ τὰ αὐτά, ⟨ἃ⟩ Πραξαγόρας [δέ] φησὶ γίνεσθαι.*

[20] Fuchs (1), p. 77 v. 4: *τὸ μὲν εἶδος τῆς αἰτίας παραλέλοιπεν*. Together with K. Kalbfleisch (Gött. gel. Anz. 1902, p. 745) I think that this refers to Diocles, and not to Praxagoras as Wellmann (4), pp. 29 and 140 suggested.

[21] A lacuna in the text makes the reading very doubtful. Wellmann's (4), p. 29 conjecture seems very arbitrary.

the nerves.[22] Further, he thinks the disease becomes acute either when the amount of peccant matter is so great as to extinguish the heat [23] or when the body, on account of its weakness, is unable to resist the spasms, but rather yields to them in advance. And if the signs of epilepsy appear in people of twenty-five, they usually accompany them to the grave.

Signs of Epilepsy

Of the epileptics, some seem to be overcome by a deep sleep, whereas others have convulsions, shake and lie in a cramped position. Those asleep are dumb and without feeling. Their breathing is noisy; their pulse is big and retarding or lethargic. They do not remember anything of what happened during the attack. They are difficult to rouse, sometimes even to the point of torpor.[24]

Those with spasms are, in like manner, without feeling and remembrance; they shake; their breathing and pulse are irregular, through greatness and frequency; their face is swollen; the blood vessels protrude very much and sometimes semen passes involuntarily. Their abdomen is contracted; their eyes become glassy and stay immobile, till they become twisted and distorted. Now, some patients' eyes remain squint, whereas in other cases the squinting eyes become normal again. Their tongue becomes enlarged, so as to protude beyond the teeth, so that they bite it and sometimes even bite it off. In epileptic attacks which are accompanied by frenzy, froth appears at the mouth.

[22] The meaning of this passage is not clear. If one read *φλέγματος* instead of *πνεύματος*, the translation would have to run: "And he said that the kicking, the cessation of breathing and the spasm arose through the issue of the Phlegm into the nerves." This would make good sense and would agree with the Hippocratic explanation as given in chapter 7 (Littré) of "On the sacred disease." On the other hand, it is possible that the Anonymus thought of a theory similar to that of Galen where the phlegmatic humour assembles in the cavities of the brain, affecting the roots of the nerves, and where the symptoms of epilepsy accompany the attempt of the organism to free itself from these obstacles and to make a free passage for the psychic pneuma.

[23] That is, the natural heat of the body.

[24] Fuchs (1), p. 78 r 1: *δσθ' ὅτε καὶ πρὸς κατηρίαν*. Instead of *κατηρίαν* I read *καταφοράν* as suggested by p. 79 v 12-13: *τοὺς δὲ ἐν καταφορᾷ . . . διεγείρειν δεῖ*.

Therapy of Epilepsy

If all the conditions of phlebotomy are fulfilled,[25] one must bleed the epileptics on the first day, leaving a repetition of it to the second day subject to a consideration of the patient's strength. And in the case of phlebotomy, they must be purged by an enema which has to be as sharp as possible and which one ought to use repeatedly. If necessary, food should be taken before the third day, if not, on the third day. But it should be light and easy to digest.

Against the spasms, we use a deterrent,[26] which we make mild and not violent. We use ointments, prepared from castor mixed with old or with Sicyonic oil and we also first make the patient drink of it. We also place cups on the vertebrae of the neck, on the backbone and on the hips, further on the thorax and the abdomen and, in women, on the lower part of the abdomen and on the groins. If the patient is strong enough,[27] we often take advantage of such remedies, adding to them the enema, as a most powerful remedy, and suppositories, containing gall of cattle and sodium carbonate or moist alum and honey.

After the third or fourth three-day period, however, if the paroxysms continue, the patient has to be put in warm oil (Sabinian [28] or old or Sicyonic) and if this is satisfactory, he should persist in it. Those patients who pass into a state of torpor must be awakened by means of applications of mustard on the skin and subsequent vapour baths. And, further, one ought to apply some of the strong ptarmics. If, however, they do not react to any of these prescriptions, then, one must blow into their nose pure vinegar, as well as vinegar together with mustard and castor. Furthermore, one must fumigate them with apophlegmatics, which one should also

[25] Fuchs (1), p. 78 r 1-2: *εἰ μὲν παρεῖεν πάντες οἱ τῆς φλεβοτομίας ἀριθμοί* etc. For the translation of *ἀριθμοί* as "conditions," cf. Wellmann (2), p. 600.

[26] From here to the end of the chapter the text is paralleled by Fuchs (1), pp. 72 r 4-73 v 14.

[27] Cf. the parallel in Fuchs (1), p. 72 r 10-11: *ἐπιτρεπουσῶν τῶν δυνάμεων*.

[28] The parallel in Fuchs (1), p. 72 r 16 gives *Σάμιον*.

inject into the nose. These should contain mustard, honey, thyme, organy, pennyroyal, and hyssop boiled down with vinegar-honey.

When the attacks have subsided, we shall proceed to exercises on the suspending machine, which, however, should be situated where the air is good. For, above all, one must beware of stifling and noisy places, strain, disagreeable odours and things of that kind, since they are reminders of epilepsy. We shall also make our patients abstain from baths and wine. If the therapy is successful for ten days [29] and a period of one year elapses ‹during which the patient is free from attack›,[30] we may be sufficiently confident that the patient is rid of the disease. While the paroxysms last, we treat the paralyses accompanying the disease by castor compresses and woollen coverings. But afterwards, we shall use purgations as far as possible, and ointments and all the other remedies suitable for the disease.

III

The parts describing the signs and the treatment of epilepsy scarcely need any commentation. The first doxographic part, however, has some points of historic interest.

The account rendered of Hippocrates' theories on epilepsy can be traced back to the writing "On the sacred disease" of the Hippocratic collection.[31] Here epilepsy is caused by a superfluity of phlegm in the brain.[32] The phlegm runs down into the blood vessels, it cuts off the air which normally endows the members of the body with movement and sensation and thus causes the various symptoms. The violence of the attack depends on the ratio between the phlegmatic flux and the warmth of the blood in the vessels.[33]

[29] Cf. the parallel in Fuchs (1), p. 73 v 7.

[30] This seems to be the meaning of the passage.

[31] Cf. Wellmann (1), p. 154.—The passage: "And if the signs of epilepsy appear in people of 25, they usually accompany them to the grave" corresponds to Hippocrates, Aphorisms V, 7 (Littré IV, p. 534).

[32] Cf. "On the sacred disease," chapters 5 and 11 (Littré).

[33] Cf. ibid. chapter 7.

But it is obvious that the Anonymus has changed the original conception of the source. For the blood-vessels of the Hippocratic writing have now become "nerves" and instead of the "pneuma," which originally meant the inhaled air, we now find the "psychic pneuma." This latter term represents a later conception, probably not used before the time of Aristotle.

It is thus manifest that the Anonymus reinterpreted the original Hippocratic ideas into the scientific language current at a much later period. But he apparently went even further and ascribed to earlier physicians opinions which were simply inferences of his own, not based on definite statements. Thus he admits that Diocles did not give any specific cause of epilepsy. Nevertheless, he tries to reconstruct Diocles' theory from a passage in which the latter connects epilepsy with obstacles for the pneuma. Such procedure can be found in several places in the work where the Anonymus tries to reconstruct older dogmas.[84]

All this suggests that as a doxographic source the Anonymus Parisinus must be used very cautiously. And since he is an important source of information for the medical history of the 4th and 3rd centuries B. C., it would be interesting to analyse his historical method more extensively. But for this purpose a better and more complete edition would have to be awaited.

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[84] Cf. e. g. the beginnings of the chapters on phrenitis and lethargy, where he reconstructs Erasistratus' views "*κατὰ τὸ ἀκόλουθον αὐτοῦ*." This seems to have been noticed by Ilberg in whose copy of Fuchs (1), now in the possession of the Institute of the History of Medicine at the Johns Hopkins University, these passages are underlined.—Cf. also Wellmann (1), p. 144.

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AN UNPUBLISHED AUTOGRAPH LETTER FROM DR. JOHN CRAWFORD (1746-1813) TO GENERAL WILLIAM HENRY WINDER (1775-1824) *

JOHN RATHBONE OLIVER

The following paragraph appeared in The Federal Gazette and Baltimore Daily Advertiser of January 15, 1813, on page 3, column 1, " Colonel Winder is here, a kind of Secretary of War; and like Bonaparte, has a room full of military maps, roads, etc., etc.,—enveloped in which you can just see his little head above them—and of that little head much is expected."

These words were read on January 15, 1813 by Dr. John Crawford of Baltimore. That night he was unable to sleep. He was getting old and, although he did not realize it, was within a few months of his death. As he lay awake that night, he remembered what he had read about General Winder in The Federal Gazette and he got up to write him a letter.

This letter, which is given below in full, was preserved by General Winder. The general's papers passed into the possession of Mr. John Thomas Scharf, the author of the well-known history of Maryland. Mr. Scharf apparently gave the papers to the Department of History of the Johns Hopkins University. They lay in the library of the department for many years and were found there a short time ago by Associate Professor William Stull Holt. In going through these papers, Dr. Holt discovered a letter from Dr. John Crawford and, knowing that I was interested in Crawford, Dr. Holt was kind enough to turn the letter over to me.

William Henry Winder and Dr. John Crawford, although they quite possibly never met, were men of the same type. Both were fighters; both made bitter enemies; both never gave up and, although each man met with great and severe disappointments, yet neither the one nor the other ever acknowledged himself beaten.

* A paper read at a meeting of the Johns Hopkins Medical History Club, on Monday, December 2, 1935.

Towards the end of his life in 1811, Dr. Crawford said, "The difficulties I have met with have only increased my ardor. As long as life and health remain, I shall devote myself strictly to the performance of my duty and I shall leave the results to the August Being who has made nothing in vain."

When Dr. Crawford wrote his letter to General Winder, America was in the midst of the War with England. Eighteen months later, more than a year after Dr. Crawford's death in May 1813, General Winder was to be in command of the American troops at the unfortunate battle of Bladensberg, on August 24, 1814—a battle that opened for the British the road to Washington and made inevitable the capture of the American Capitol. It was this battle that brought General Winder such bitter criticism, which might have broken the spirit of a less determined man. Winder survived it, however, and later on forced a court martial, which completely vindicated him.

It is interesting to possess a letter written by Dr. John Crawford and composed during a long, sleepless night so soon before his death—a letter that passed into the hands of General Winder and that seemed to him of such value that he carefully preserved it.

Dr. John Crawford was a North Irishman. He was born in 1746. His father was a clergyman and John was a member of a large family. He entered Trinity College in Dublin, but went to Leyden for his degree in medicine. He was apparently attracted to the British Navy and entered its medical service, which sent him to a naval hospital in the Barbados. After several years, he went home on leave and his wife died during the voyage. He returned to the Barbados and was later transferred to Demerara, which was then a Dutch possession. Apparently, even as a young man, Crawford was not easy to get along with. The cut-and-dried procedure of British naval life hampered and irritated him. At Demerara, he was given a hospital of some sixty to eighty beds and it was here that he studied Botany and Entomology and laid the foundation of his later theory of Animal Contagion. In 1794, while on leave, he revisited Leyden and tried to explain his new theory of contagion to his old teachers, but he received no attention whatsoever.

At this point in his life, there must have been some definite period of rebellion or of disappointment. In 1796, Demerara had been

taken by the British and John Crawford, leaving behind his hospital and his past work there, emigrated with his children to Baltimore. In Baltimore, he practised his profession for seventeen years. He became censor, examiner and orator of the Medical and Chirurgical Faculty of Maryland and was also a member of the Board of Health. There is a vague connection between him and the history of vaccination in Maryland. We know that in the summer of 1800, Crawford received from London some vaccine " on a cotton thread, rolled up in paper and covered with a varnish." This was the first vaccine received in Maryland, but, so far as can be discovered, no definite use was made of it.

Crawford's dominant personality soon made itself felt outside his profession. He was a prolific writer (cf. the Baltimore Observer, Vol. I, 1806, pp. 248, 262, 283, etc.; also Vol. II, 1807, p. 7 etc.). He helped to found the Baltimore Dispensary and the Baltimore Library (1798) and he was interested in the building of the city's first penitentiary. He also gave public lectures, but apparently, as a lecturer, he was not very successful. He was an active Free Mason and when he died in May 1813, he was buried with great pomp by his Masonic brethren in the Presbyterian Cemetery, at Fayette and Greene Streets.

He seems to have married a second time for, after his death, his library was sold by his widow to the University of Maryland.

He gave himself freely and fully to what he considered the welfare of his adopted country. The last sentence in his letter to General Winder is typical of his general attitude. " This," he writes, " is my adopted country and everything dear to it is dear to me."

The letter which we are printing here is important not merely because it was written to General Winder by Dr. John Crawford, but because it urges the establishment of a permanent board which was to examine candidates for medical appointments in the Army and Navy of the United States. At the time of Dr. Crawford's letter, the only established medical service in the Navy was the Marine Hospital Service, established in 1798 for the medical treatment of disabled merchant seamen. A marine hospital was built in Norfolk in 1800 and another one in Boston in 1802. In order to deal with similar conditions on inland waters, an army board was

established in 1837. Not until 1878 did the old Marine Hospital Service become a Federal Health Service. In 1889, it was reorganized and given officers that were commissioned like medical officers in the Army. It is evident, then, that Dr. Crawford was far in advance of his time and that he looked forward to a development of medicine in the Army and Navy that did not actually come into being until many years later. His own early experience as a surgeon in the British Navy must have given him an unusual insight into the imperfections of similar officials in the American Army and Navy.

Dear Sir,

My very infirm health somewhat exposes me to pass many hours of the night awake. This happened to me last night, and the witicism, at least so deemed by the contemptible author, in the Fed. Gaz. of last night, respecting you, brought you into my mind. This suggested a train of ideas which I have deemed it my duty to submit to you. Complaints have been made in the public papers of the insufficiency of the medical men employed in the Army. I *know* that the same cause of complaint exists in the Navy. When Mr. Smith was at the head of that department, I had some conversation and indeed wrote to him on the subject. I suggested the necessity of requiring that every surgeon and surgeons mate should obtain from a competent authority, a testimonial of his being qualified for the office. This in Europe, is a sine qua non, the reasonableness of which cannot admit of a dispute. A suitable Board should be appointed for this purpose, and might serve for both land and sea departments. In such appointment, my experience assures me that a great improvement might be made on those of Europe. Instructions should be given to that Board by which they should regulate their conduct. The Board should consist of not less than three—one for Anatomy and surgery, one for chymistry, and one for the Materia Medica, and the Practice in Diseases. As to Theory, it may as well be omitted; according to what is generally taught, it is wholely useless. The Anatomist should be

enjoined to require of the candidate a knowledge of the situation and uses of the muscles that move the joints, of the course of all the larger arteries and nerves, and of the structure and position of all the viscera of the Trunk. This should not be left to the discression of the examiner; they are too often omitted, and the time taken in displays of the examiners learning and particular opinions. This I have experienced, in my own examinations; this I have witnessed where I have been a member. The manner of performing all the capital operations should be familiar to all who pretend to undertake them; not only the *how* but the *when* according to the direction of the best authors should be well known.

The Examiner on Chymistry should be directed to satisfy himself that the composition of Chymical medicines, the nature and properties of the different kinds of air to which we are exposed in different situations, and the best and most advantageous mode of preparing the different objects of nourishment should have been well studied by him who pretends to the medical care of ships of war or of any part of an Army.

The Examiner on Materia Medica and practice in diseases should exact an intimate acquaintance with all the most efficient medicines in use, and as far as our present knowledge extends, which is alas! miserably deficient, of the indigenous productions which may contribute to the cure of diseases. The applicant should be enabled to describe with accuracy, the leading symptoms of all the most frequent diseases, and the remedies for them which have been most approved of by the best authorities.

I fear that the state of physic in this country at present, and the demand for medical assistants during the actual state of our war would not admit of a rigid adherence to the above plan. But common sense will dictate that a commencement should be made. If instructions to such a board as is proposed, should be deemed expedient, they should be made as public as possible, to let young men, whilst students, know

what will be expected of them, if they should have any views of entering into the navy or army. I shall here beg leave to make some remarks on the chymical examination, as also upon that of the materia medica. How often does it happen that a disease occurs in a ship which lays prostrate nearly the whole crew—If proper attention were given to the state of the air in the hold and between Decks, the evil by proper means might be removed; this experience has fully shewn, I witnessed it on one occasion conspicuously. An infectious fever occurred in a ship to which I belonged; we sent the men, whilst in Port, to the Hospital. As often as they returned, they relapsed. I advised washing with Lime water and the evil was instantly removed.

Encamping the soldiers is an object of such magnitude, that too much importance can not be attached to it. A well instructed Physician ought to know, almost to a certainty, the safety of the ground which may be chosen for this purpose. The difficulty of procuring ordinary medicines often occurs. A man sufficiently instructed, will often find such as are the most efficacious, in the woods and swamps where he sojourns.

These my Dear Sir! are of so great moment as require only to be mentioned to evince their importance, and I could not go again to rest before I had submitted them to your consideration. This is my adopted country, and every thing dear to it is dear to

Your most affectionate humble servt.

John Crawford

Baltimore 16th Jany. .13.

This is a very hasty, and not well digested sketch—I hasten to forward it, least you should leave the city sho[rt]l[y].

This old autograph letter, with its faded ink, written by a steady hand that was so near the end of its work, brings before us, I think, an interesting picture of two types that have contributed so much to the development of America. On the one hand stands the fiery,

active General Winder, who is enveloped in the mass of military maps and who must have been a small man, since he is compared to Napoleon. On the other side, we see the big, bluff, out-spoken physician, interested in everything, living in a whirlwind of activity and more or less at variance with everyone. The little man is a product of our own country, a Marylander, educated at the University of Pennsylvania for the Law, but leaving the law immediately when his country went to war and raised to the rank of Brigadier-General, demoted after the war and returning to his law practice and finally becoming a member of Maryland's Senate until his death in 1824. The other man is not an American product. He is one of those who, finding himself in irksome circumstances in his native land, frees himself somehow or other and comes to another country, where he believes that he can find wider scope for his gifts and abilities. The native son and the son of a foreign soil who becomes native—to both of these men the country and the state in which they lived were of supreme importance. And surely General Winder might have used the same words that Dr. Crawford wrote in the last sentence of his letter. Indeed, these words of Crawford's belong on the lips of all those who have come to this country from some foreign domain and have found here opportunities for work and for service. In a narrower sense, Dr. Crawford's words might be used today by all those of us, who, although not Marylanders by birth, have settled ourselves on Maryland soil and have found ourselves at home. It is for us to say with Dr. Crawford, "This is my adopted state and everything dear to it is dear to me." Here then are two greatly misunderstood men, both fighters, both aggressive and rather intolerant, but who were formed of that same human material which has made the history of Maryland so stimulating a part of American History.

NOTE: On the back of Dr. Crawford's letter, which is directed to Colonel Winder, Washington, we find this endorsement: "From Dr. John Crawford 16th Jan^{y} 1813 relative to the establishment of a board to examine candidates for surgical appointment in the army and navy—" I am indebted for the citation in The Federal Gazette and Baltimore Daily Advertiser of January 15, 1813 to the kindness of Mr. H. S. Parsons, Chief of the Periodical Division of the Library of Congress, Washington.

FIG. 1. The grandson of Louis Pasteur and the collector of his works.

Dr. Pasteur Vallery-Radot (right), and Dr. Henry Barton Jacobs (left), in the Henry Barton Jacobs Collection of the William H. Welch Medical Library, April 25, 1935.

AN AUTOGRAPH NOTE OF LOUIS PASTEUR

HENRY E. SIGERIST

In the spring of 1935 our University was honored by a visit of Dr. Pasteur Vallery-Radot who came to deliver the William Sydney Thayer and Susan Read Thayer Lectures. Dr. Pasteur Vallery-Radot is the grandson of Louis Pasteur, the son of Pasteur's biographer, René Vallery-Radot, and is himself a distinguished scientist, and a most charming personality. He devoted one of his lectures to Pasteur's work, giving a most graphic description of the links between Pasteur's discoveries, showing how one discovery logically led to another. At the same time he impressed us very much by telling us that it had been Pasteur's life-long wish to return to his initial studies in organic chemistry. Pasteur felt that this was the field where he could make his most important contributions, where he might approach the problem of life itself. Circumstances drove him into very different spheres and his life became an uninterrupted chain of triumphal discoveries. And yet, far from being exultant about his achievements, Pasteur, looking back at the end of his career, still regretted the turn that his life had taken.

Before leaving Baltimore Dr. Vallery-Radot presented the University with a precious autograph of Pasteur. It was assigned to the Henry Barton Jacobs Collection in the Welch Medical Library and is treasured there among the many books, pictures, medals and other collections of Pasteur.

The autograph (Fig. 2) is a loose leaf, 260 x 195 mm. in size, covered with notes in Pasteur's fine handwriting. It gives a very illuminating account of Pasteur's painstaking way of preparing his works and certainly deserves to be published literally. In the following transcription the footnotes have been added so as to identify some of the men and books referred to as far as this seemed necessary. The text reads as follows:

17 MARS 1865. Note sur la putréfaction.

En lisant les auteurs qui ont écrit sur la putréfaction, on devra rechercher tout ce qui est relatif à cette période où de l'ammoniaque se dégage. On en fera un historique complet. Il faudra prendre garde que certains auteurs ne parlent de ce dégagement qu'en paraissant préoccupés du fait relatif à l'urine. Macquer [1] par exemple. Voir article putréfaction. Ce n'est pas du fait de l'urine étendu sans preuves à la viande etc. . . . qu'il s'agit—Lire Pringle [2] avec attention. Il fait aussi cette remarque, p. 312.

Voici très probablement les premières observations sur ce point important.

On verra par la lecture de Pringle p. 311 et autres que cet auteur prétendait que les corps ne deviennent pas alcalins par la putréfaction ou du moins très peu. Mais Gaber,[3] de Turin (voir p. 412 de Pringle), lui fit observer (Il faudrait lire cet auteur) qu'il est vrai qu'au commencement de la putréfaction, il n'y a point d'effervescence avec les acides; qu'elles en font ensuite d'une manière sensible, mais qu'à la longue elles cessent d'en faire, quoique la putréfaction continue toujours. Pringle p. 413 convient qu'il s'est trompé, et, en effet, il ne parle jamais de la putréfaction que dans ses premières manifestations.

N'est ce pas ce M. Gaber qui a, d'après ces faits, produit le premier l'observation précise d'une période ammoniacale—c'est ce qu'il faudra rechercher.

Voir ce qui a pu être fait avant lui—

[1] Pierre-Joseph Macquer (1718-84), Dictionnaire de chymie contenant la théorie et pratique de cette science . . . , Paris, 1766, 2nd ed., 1778.

[2] Sir John Pringle (1707-82), Experiments upon septic and antiseptic substances, with remarks relating to their use in the theory of medicine, Philosophical Transactions, 1750, vol. XLVII, later incorporated in his Observations on the diseases of the army, London, 1752, last edition, 1810. French translation: Observations sur les maladies dans les camps et dans les garnisons, avec des mémoires sur les substances septiques et antiseptiques, Paris, 1755, 2 vol.; again 1771.

[3] Jean Baptist Gaber (1730-81), Specimen experimentorum circa putrefactionem humorum animalium, Miscellanea Taurinensia, I, 1759, II and III, 1762-65.

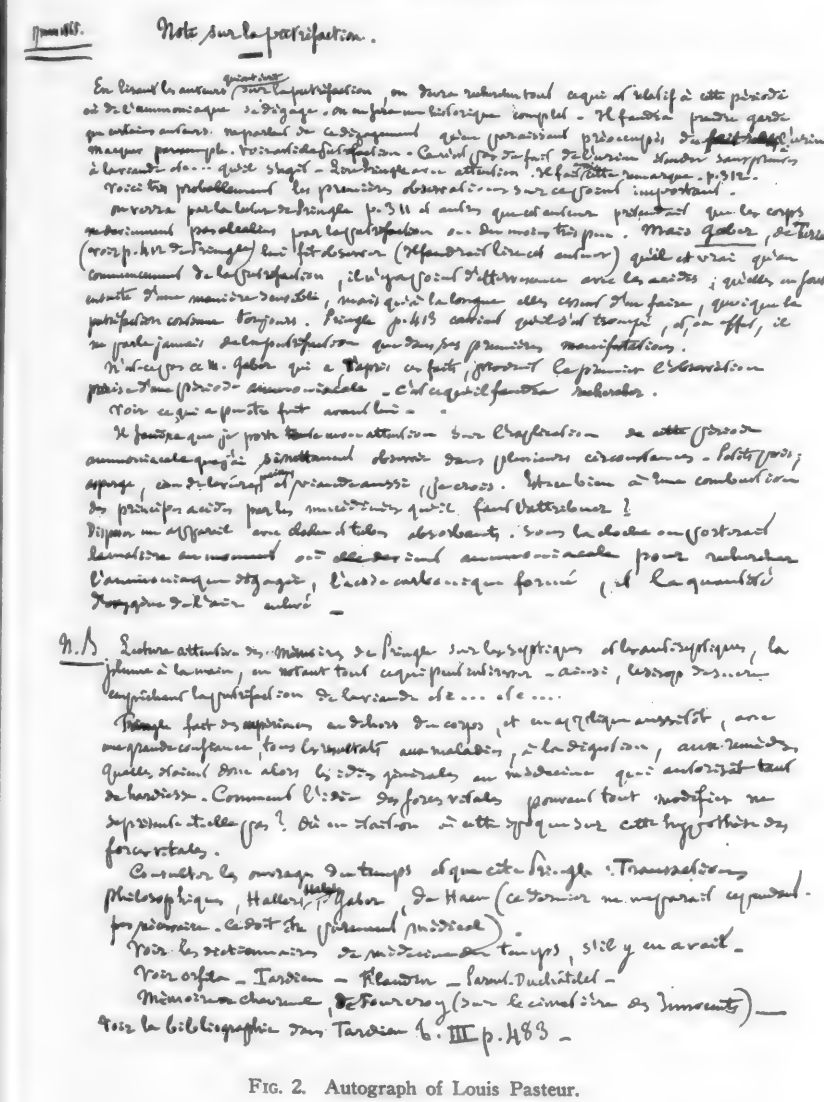


Fig. 2. Autograph of Louis Pasteur.
Henry Barton Jacobs Collection.

Il faudra que je porte toute mon attention sur l'explication de cette période ammoniacale que j'ai si nettement observée dans plusieurs circonstances—Petits pois, asperge, eau de levure, pain, et viande aussi, je crois. Est-ce bien à une combustion des principes acides par les mucédinées qu'il faut l'attribuer?

Disposer un appareil avec cloche et tubes absorbants. Sous la cloche on porterait la matière au moment où elle devient ammoniacale pour rechercher l'ammoniaque dégagée, l'acide carbonique formé, et la quantité d'oxygène de l'air enlevé—

N. B. Lecture attentive des Mémoires de Pringle sur les septiques et les antiseptiques, la plume à la main, en notant tout ce qui peut intéresser—ainsi, le sirop de sucre empêchant la putréfaction de la viande etc. . . . etc. . . .

Pringle fait des expériences en dehors du corps, et en applique aussitôt, avec une grande confiance, tous les résultats aux maladies, à la digestion, aux remèdes. Quelles étaient donc alors les idées générales en médecine qui autorisât tant de hardiesse. Comment l'idée des forces vitales pouvant tout modifier ne se presente-t-elle pas? Où en était-on à cette époque sur cette hypothèse des forces vitales.

Consulter les ouvrages du temps et que cite Pringle: Transactions philosophiques, Haller, Hales, Gaber, de Haen (ce dernier ne me parait cependant pas nécessaire. Ce doit être purement médical).

Voir les dictionnaires de médecine du temps, s'il y en avait—

Voir Orfila [4]—Tardieu [5]—Flandin [6]—Parent-Duchâtelet [7]

[4] Matthieu-Joseph-Bonaventure Orfila (1787-1853), chemist and professor of legal medicine in Paris.

[5] August-Ambroise Tardieu (1818-79), author of a Dictionnaire d'hygiène publique et de salubrité, ou répertoire de toutes les questions relatives à la santé publique. . . . Paris, 1852-54, 3 vol.

[6] Charles Flandin (1803-91), physician and chemist, author of numerous papers on poisonings and hygiene.

[7] Alexandre-Jean-Baptiste Parent-Duchâtelet (1790-1836), his collected papers on sanitation were published as Hygiène publique, Paris, 1836, 2 vol.

Mémoire de Chevreul,[8] de Fourcroy [9] (sur le cimetière des Innocents)—Voir la bibliographie dans Tardieu t. III, p. 483.

Pasteur wrote this laboratory note on the 17th of March, 1865. Less than three months later, on June 6, he left for Alais where he went to study the disease of the silk-worms. Once more he had to postpone his chemical investigations.

[8] Michel-Eugène Chevreul (1786-1889), professor of chemistry and director of the Museum d'Histoire Naturelle.

[9] Antoine-François de Fourcroy (1755-1809), professor of chemistry at the Jardin des Plantes.

RARE BOOKS IN THE WELCH MEDICAL LIBRARY

2. Old Manuscript Prescriptions in a Copy of Celsus, Venice, 1497

OWSEI TEMKIN

During the period of the "Incunabula" four prints of Celsus' "De medicina" appeared, the last in 1497. It was printed in folio by Philippus Pincius for the publishing house of Benedictus Fontana in Venice on May 6th, 1497, and comprises 94 leaves of Latin text together with a Latin index.[1]

A copy of this edition was presented by Dr. Howard A. Kelly to the Johns Hopkins Hospital and is now kept in the Welch Medical Library. Unfortunately the last leaf bearing the printer's name, the place and date as well as the publisher's sign is missing, and some of the bottom lines of the pages in the index together with a few marginal annotations by earlier owners were partly damaged when the book was bound. Otherwise, it is very well preserved.

Particularly interesting is the fact that its title leaf has been inscribed with some old prescriptions. On the recto (fig. 1) we read prescriptions for syphilis in German, whereas the verso (fig. 2) shows directions for the preparation and use of aqua vitae, aurum potabile and an antidote in Latin and German. The writer's name, his place and time are not known but judging from the language these recipes might have been written down in the 16th or 17th century. The transcription of the prescriptions reads as follows:

Ein Salben vor die franzosen vonn her bernarth

Rp. alt schmer 16 lott: und gepuluert lorber 16 lott und loroel 8 lott und mercurium praecipitatum 8 lott mach doraus ein salben

Ein ander Salben.

Rp. altt schmer und mercurium praecipitatum die 2 dinck reib wul untereinander und gestoszen in einem mardter darnoch

[1] Confer number 6459 in the *Gesamtkatalog der Wiegendrucke*, vol. VI, Leipzig, 1934 pp. 362-363 where careful description of this edition is given.—Confer also Hain-Copinger 4838.

nim geprante alaun plei . . . und weisen weüroch odr mastix die drei ding sthos undtereinand⟨er⟩ und misch darnach mach es ab mitt den lorber ol. und schmir die glidmas domitt

Zu dem plotternn vor die lem.

Rp. Wenedische seiffen 2 teil. lorbernn krondlper.[2] loröl hundsschmalz mercurium precipitatum die V stucken ana wul durich eiander geriben und getemperiert mitt der seüffen. und mach ein salben und salb die glider domitt hilfft vor die lem.

Zu dem plotternn den franzosen.

Rp. grünspon,[3] alaun, sulffur. ana. und temperier es mitt weinessig ab und salb die plottern domitt so werden sie düre.

Ein gutter trangck die franzosen ausz dem leib zu treüben.

Rp. beifus. wermuth. und eichen laub. ysop. galgantt. pru . . . wurz. lequiricij. ana wul gesatten in gutten pir fru und spott getruncken treibtt die plottern ausz dem lei⟨b⟩

Aqua vitae fratris Iacobi Paumgart ord. praedicatorum

Rp. 1 lot zedoariae. cariofillorum 1 lot. 1 lot nucis moschati. 1 lot: piperis longi. 1 lot: Galangae. 1 lot flos moschati. 1 lot cinnamoni. 1 lott zingiberi. 1 lot lauribacca: 1 lot Angelicae, 1 lot wokowrani.[4] 1 lot camphorae. 1 lot: Cervi boleti. 1 lot Cubeben. 1 lot granorum paradisi. 1 lot lignum aloes. 2 lot baccarum Iunipe: 1 lot Salviae 2 lot lavendl. Haec omnia iunctim tundantur in mortario et infund⟨e⟩ sexies magis Vini rectificati et sine stare per 24 dies. deinde distilla intentissimo igne.

Aurum potabile.

Rp. geschlagen goltt von golttschlaher. und thue es in einen kolben. und thue dryin satis urinae. und vormach die kolben wul zu. und setze es zu digestiren in einem lindem wirm so

[2] *I. e.* Cranberry.

[3] This is another example for the early use of verdigris in the therapy of syphilis to which attention has been brought by Paul Richter in *Arch. Gesch. Med.*, vol. V. 1912. P. 413.

[4] I am not able to identify this drug.

soluirt sich goltt in I4 tage. und wen sich soluirt. mach die kolben aufe. und setze einen alembik doraufe und distilier die satz gor daruon so pleibt das goltt am paden wie ein praunne aschen. und las es von im selber würckhen. darnach geis drauf gutten vinum rectificatum. und seze die kolbe in einen zandtt bormen mit linden feür so soluirt sich das goltt und wirt gar schen und ckhlar sei So setze es an die Sunne ad circulatorium und las drause stihen 3 wochen. pis es nymmer aufe und nider schteiget so es ist edel und guett.

USUS

In allen 4 wochen vir mal I quintel.

Fructus.

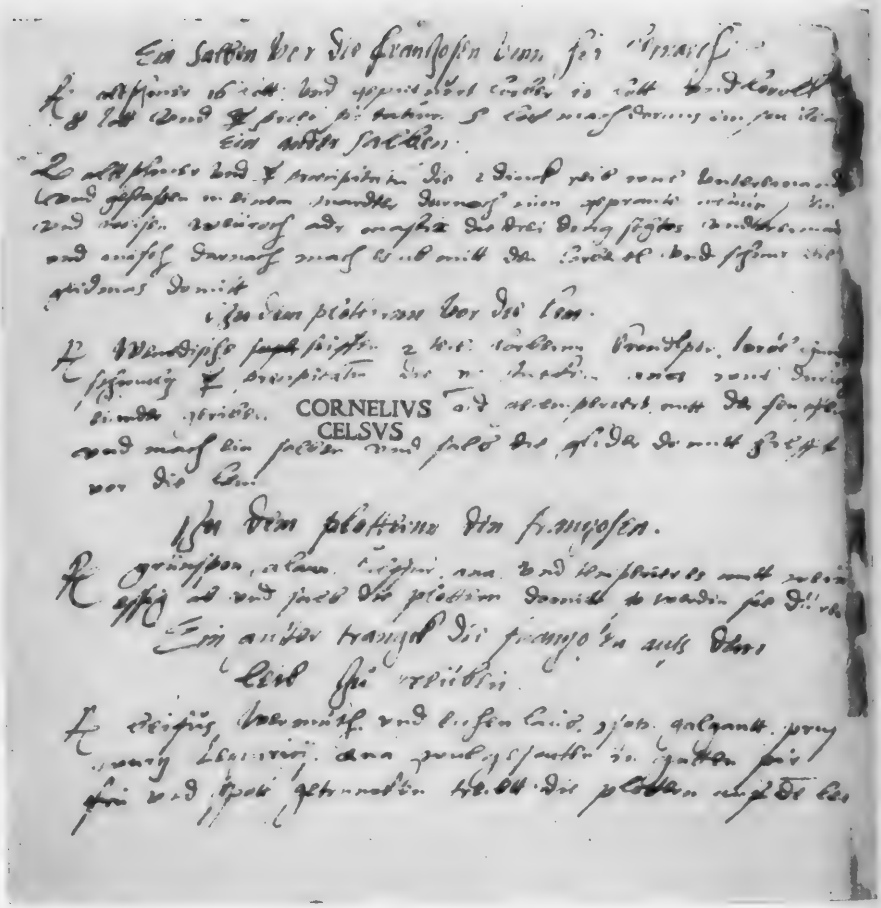
Summa Summarum pihaltt pei gesünth und wülmügenden jungen leib pis das die natürliche tot khumptt.

Contra Venenum praestantissimum saepe numero probatum.

Rp. 20 rautten pletter. 2 feügen. 2 haselnüs. 2 welschenüs und 9 khrandlper. und weiss diptamus ein würzol su genant. und das mittenander nichtern geszen, certissimum.

Diptamus hest tzē wdawa.[5]

[5] Here apparently the writer translated *diptamus* by a word whose meaning is unknown to me.



CORNELIVS CELSVS

Fig. 1.

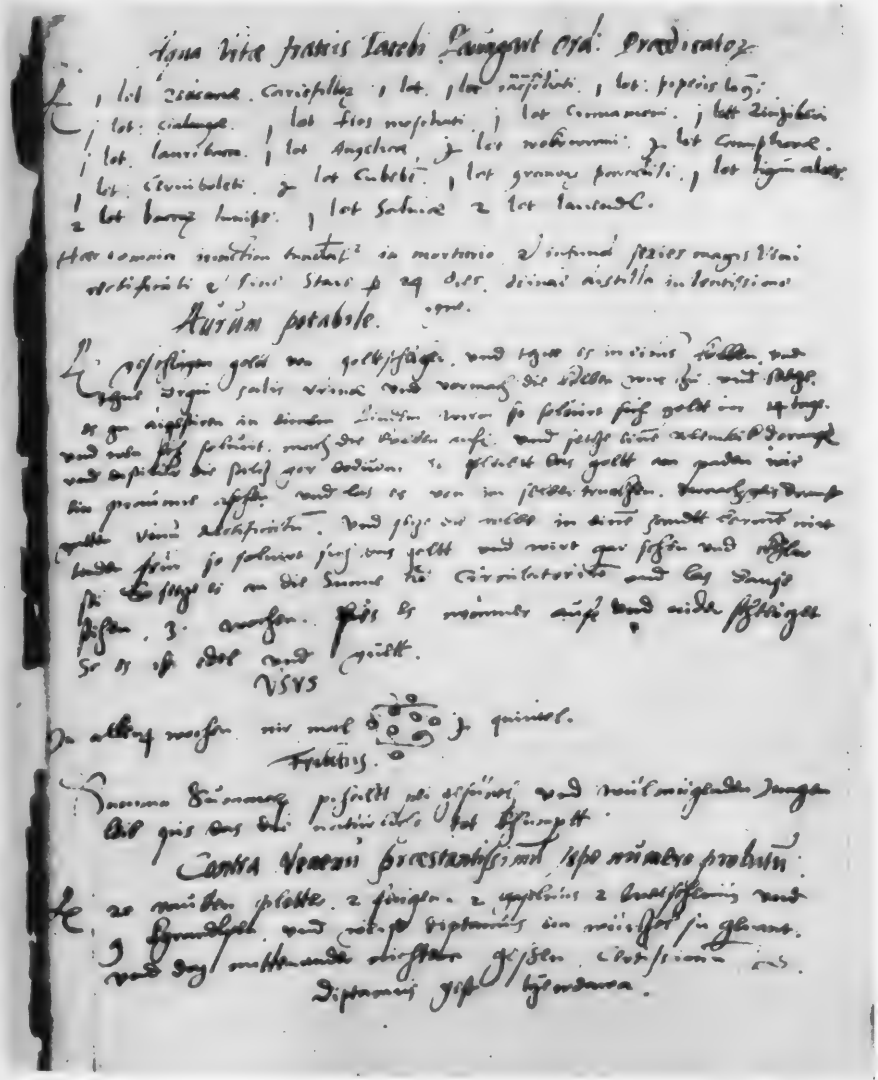


FIG. 2.

AVRELII CORNELII CELSI MEDICINAE LIBER PRIMVS INCIPIT.

T alimenta ſanis corporibus agricultura: ſic ſanitatem ægris medicina promittit. Hæc nuſquã quidem non eſt. Si quidem etiã imperitiſſimæ gentes herbas: aliaq; prompta in auxilium vulnerum: morborumq; nouerunt. Verũtamẽ apud græcos aliquãto magis quam in cæteris nationibus exculta eſt. ac ne apud hos quidẽ a prima origine: ſed paucis ante nos ſæculis: vtpote cũ vetuſtiſſimus auctor Aeſculapius celebretur. Qui Aeſculapius qm̃ adhuc rudem & vulgarem hanc ſcientiam paulo ſubtilius excoluit: in deoꝝ numerum receptus ẽ. Huius deinde duo filij Podalirius & Machaon bello troiano ducem Agamennonem ſecuti non mediocrem opem cõmilitonibus ſuis attulerunt. Quos tñ Homerus non in peſtilẽtia: neq; in varijs generibus morborum aliquid attuliſſe auxilij: ſed vulneribus tantũmodo ferro & medicamentis mederi ſolitos eſſe proposuit. Ex quo apparet has partes medicinæ ſolas ab his eſſe tẽtatas: eaſq; eſſe vetuſtiſſimas. Eodemq; auctore diſci poteſt morbos tum ad iram deoꝝ immortalium relatos eſſe: & ab iiſdem opem poſci ſolitam. Veriq; ſimile eſt inter nõnulla auxilia aduerſæ valetudinis plerumq; tamen eam bonam contigiſſe ob bonos mores: quos neq; deſidia: neq; luxuria vitiarant. Si quidem hæc duo corpora prius in græcia: deinde apud nos affixerunt. Ideoque multiplex iſta medicina: neq; olim: neque apud alias gentes neceſſaria: vix aliquos ex bonis ad fenectutis principia perduxit. Ergo ẽt poſt eos: de quibus rettuli nonnulli clari viri medicinam exercuerunt donec maiore ſtudio litteraꝝ diſciplina agitari cœpit. quæ vt animo præcipue omnium neceſſaria: ſic corpori inimica ẽ. Primoq; medendi ſcientia: ſapientiæ pars habebaf: vt & morborũ curatio & reꝝ naturæ contemplatio ſub iiſdem auctoribus nata ſit. Scilicet his hanc maxime requirentibus: qui corporꝝ ſuorꝝ robora inquieta cogitatione nocturna q; vigilia minuerant. Ideoq; multos ex ſapientiæ profeſſoribus peritos eius fuiſſe accepimus. Clariſſimos vero ex his Pythagoram & Empedoclem & Democritũ. Huius aũt: vt quidam crediderunt: diſcipulus Hippocrates cous primus quidẽ ex omnibus memoria dignus ab ſtudio ſapientiæ diſciplinã hanc ſeparauit: vir & arte & facũdia insignis. Poſt quem Diocles cariſtius: deinde Praxagoras & Chryſippus: tũ Herophilus & Eraſiſtratus ſic artẽ hanc exercuerunt: vt ẽt in diuerſas curãdi vias proceſſerint. Iiſdemq; temporibus in tres partis medicina diducta eſt: vt vna eſſet quæ victu: altera quç medicamentis: tertia quæ manu mederetur. Primam Διαιτητικην ideſt diacteticam: ſecundam φαρμακευτικην ideſt pharmaceuticam: tertiam Χειρουργικην ideſt chirurgicã græci nominauerunt. Eius autem quæ victu morbos curat longe clariſſimi auctores ẽt altius quædam agitare conati reꝝ quoq; naturæ ſibi cognitionem vendicauerunt: tanquã ſine ea trunca & debilis medicina eſſet. Poſt quos Serapiõ primus omnium nihil hãc rõnalem diſciplinam pertinere ad medicinam profeſſus in vſu & experimentis eam poſuit. Quem Apollonius & Glaucias & aliquanto poſt Heraclides tarentinus & aliqui non mediocres viri ſecuti ex ipſa profeſſione ſe empiricos appellauerũt. Sic in duas partis ea quoq; quæ victu curat medicina diuiſa eſt: alijs rationalem artem: alijs vſum tm̃ ſibi vendicantibus: nullo vero quicquam poſt eos qui ſupra comprehenſi ſunt agitante niſi quod acceperat: donec Aſclepiades medẽdi rationem ex magna parte mutauit. Ex cuius ſucceſſoribus Themiſo nuper ipſe quoq; quæ

Fig. 3.

CONTEMPORARY HISTORY

THE SERVICE TO MEDICINE IN SIAM

RENDERED BY

HIS ROYAL HIGHNESS PRINCE MAHIDOL OF SONGKLA,
C. P. H., M. D. (Harvard)

A. G. ELLIS, M. D.
Dean, Faculty of Medicine, and Director of Siriraj Hospital

FOREWORD

The influence of His Royal Highness Prince Mahidol of Songkla upon medicine in Siam was many sided and far reaching. His financial contributions, his scholarships for study abroad, his staunch support of a high standard for medical education, his espousal of medical research, his keen interest in the training of nurses, his abiding belief in the value of child welfare work, his enthusiasm for the various phases of public health, his personal selection of medicine as a profession—all these are to be considered in a summary of his interests and accomplishments.

And behind all these activities that had a direct bearing upon the health of his countrymen was the man himself. His dominant yet extremely modest personality, his charming manner, his high moral character, his innate kindness of heart, his admirable qualities as a husband and father, all combined to make him a refined and distinguished and lovable gentleman, in the truest sense of that word. Any chronicle of his scientific and philanthropic achievements without reference to these personal attributes which dictated them would be one-sided and incomplete. Therefore the following pages not only attempt to describe the service to medicine rendered by Prince Mahidol; they also embody a personal appreciation of the man, arising from the great privilege of having been called his friend.

One assumes a heavy responsibility in writing even a brief tribute to such a character. Would that my words were more fitting to their task. May their weakness be partially compensated by the fact that they are written in all sincerity and humbleness, in admiration and profound respect.

(SIGNED) A. G. ELLIS

December, 1932

CHAPTER I

The Year 1920 (B. E. 2463)

This narrative begins with the year 1920 because during that year the influence of His Royal Highness Prince Mahidol on medicine in his country first assumed active and definite form. In July he came to Siriraj hospital to arrange for laboratory work during the few months that were to elapse before returning to his studies in Harvard University. At that time he had already taken a preliminary year and the first two years of the regular course in the Faculty of Medicine of Harvard. In addition, before returning to Siam to attend the cremation ceremonies for the late Queen Mother, H. M. Queen Soavabha Bhongsri, he had completed half of a third year devoted to hygiene and public health. This change from the regular medical course to the one in public health was, to the best of my knowledge, due partly to his appreciation of the great need of public health work in Siam and partly to the persuasive efforts of the much-liked Professor of that department.

At this time therefore, Prince Mahidol was well along in the study of medicine, which he had decided to take up as a profession. And at about the same time he began medicine himself, he also began his extension and multiplication of personal usefulness by taking to the United States in 1917 two young men to study medicine on his scholarships. (Both these men are now rendering splendid service to their country, one in the Faculty of Medicine, one in the Department of Public Health.)

Our hospital laboratory at Siriraj was at the time under discussion much cramped for space and scantily equipped. Hence my first reaction to the news that His Royal Highness (then a stranger to me) was coming to work with us had been that of despair, almost of protest; we were not at all prepared to receive a high member of the Royal Family. But within a few minutes after he came he had reassured and completely disarmed me and had converted me into as humble an admirer as was any of his own countrymen. Despair had been replaced by pleasurable anticipation of working with this most modest but capable student of medicine.

His interest in the subject was so great as to entirely submerge his social position during these periods and make of him simply an enquiring laboratory worker with the rest of us. He said he had been studying preserved and mounted amebae and malarial and other parasites at Harvard and wished to see the living forms here. The assistants in the laboratory could at first hardly carry on their work when he was with them and were very backward in answering his questions. He asked me the reason for this and was genuinely surprised when I explained that they were too much awed by the presence of a Prince of his rank. "But," he said, "when I am working in the labratory they should treat me as a student, not as a Prince. They are to do their own work and also help me by answering my questions." This they gradually came to do but not with as much freedom as he would have liked.

This difficulty of correlating his high position with the scientific work in which he was so intensely interested came to light in different ways. At that period when he was studying hygiene and public health at Harvard, a required part of the course was making a sanitary survey of a town. This consists of a close study and tabulation of actual conditions found in the town or city, as to streets, houses, habits of living, drainage, disposal of refuse, water supply, markets, and other points in any way affecting the health of the people. Prince Mahidol wished to employ at least part of the three months at his disposal in making a sanitary survey of Bangkok. This would have been a real help to him in his course of study and have furnished the opportunity of collecting information regarding his own city that would have been invaluable to him and the city authorities in later years. Everything seemed favorable for such a survey.

But one day he came to the laboratory and told me in deep disappointment that he would have to give it up. The reason: His sense of fairness to every one demanded that he ask advance permission of the officials at each place he wished to visit. When he arrived he would find all the elements of a formal reception—decorations, tents, all officials and employees at attention, work so far as possible suspended. There would be speeches, a formal inspection of premises specially made immaculate for the occasion, tea would be served and politeness would dictate that he then take his leave.

The notebook in his pocket would have none of the data he wished to collect as a student seeking facts regarding actual conditions and routine work. His Royal Highness possessed a keen sense of humor and his description of these receptions was to us highly entertaining. But the underlying condition was not so humorous. In my early ignorance of the true character of Prince Mahidol I suggested that as his position gave him the right to lay down conditions as he chose, he might make his inspections incognito and do away with official receptions.

This, he explained, he could not do with propriety because his position demanded that he ask permission of officials to make such studies. With permission granted, custom required these receptions by the officials. His appearance incognito and unannounced would wound the feelings of the concerned persons who wished to pay their respects to him and he felt that this would not be right. He therefore allowed this survey to drop, although deeply regretting that it was advisable so to do.

This incident showed the fairness of Prince Mahidol and his appreciation of what his position meant to government officials and in addition his innate kindness of heart and sensibility to the feelings of others. It is related here because of the feeling by some that his residence and studies abroad had led him to imbibe so much of foreign, and especially democratic, ideas that he developed a degree of dissatisfaction with his own people and country. Others felt that his taking up the profession of medicine had led to something of the same result, particularly in respect to the carrying out of his Royal prerogatives. My acquaintance, official and personal, with His Royal Highness enables me to say that these inferences were not well founded. They were based on superficial observation and secondary events and not on a real knowledge of his disposition, his aspirations, his loyalty to King and country.

Some of the misjudgments in respect to his attitude toward his country and his people were due to the fact that he was an implacable foe of inefficiency, dishonesty, laziness, immorality, the playing of petty politics, and pretensions of all kinds whatsoever. His reactions to these were intense and led to official and personal expressions that left no doubt as to his feelings. But this was

antagonism to acts of individuals or groups of persons, based on principles of conduct for which he had a high standard; it was not antagonism to government or people or country as such. His study of medicine and public health and child welfare certainly did not cause him to lose interest in his people; all of these things were for the sole purpose of helping them avoid sickness and untimely death. Truly he became impatient, very impatient, with affairs and men at times, for he was thoroughly human and very sensitive and was easily disturbed by lack of appreciation and by unfavorable comment. But a healthy dissatisfaction with affairs in one's own country, accompanied by efforts to improve them, is an element in the highest brand of patriotism. In the case of His Royal Highness these were things on the surface of a deep love for his people and country and it would be unfair to intimate that his adoption of the science of medicine, and the learning of it abroad, disturbed in any way these natural and deep-seated affections.

The work of His Royal Highness in the laboratory at Siriraj hospital was continued into September. During this time he was also teaching histology to medical students at the Faculty of Arts and Sciences. He was deeply interested in the work of students and nothing pleased him more than to help them by preparing outlines of subjects and teaching. At that time microscopes for this work were few in number but he was undaunted by lack of facilities; he made the most of the equipment at hand and worked the harder himself. He was keen in getting knowledge at first hand. The question arising as to the presence of a certain parasite in the blood of Siamese people, His Royal Highness arranged for the examination of men in prison. It was necessary to do this at night because that is the time the parasite appears in the peripheral circulation, so we went and obtained a specimen from each of 128 prisoners, finishing the work after midnight. A further instance of his broad-minded interest in affairs of sanitation was shown by his mentioning one day in conversation that he hoped to see the installation in Siam of crematories. These he said would not come soon but he hoped later to help in their introduction as an improvement on the old-style insanitary procedures.

During this period His Royal Highness was engaged in raising

money for a new building for pathology and hospital laboratory work at Siriraj. He spoke of erecting the building if the government would equip and maintain it, or if desired, he would contribute the second part. This particular building was finally erected by the University and Prince Mahidol contributed instead the men's surgical building, housing 58 patients and costing Ticals 80,000. This was his way of working; if he could not secure needed money from other sources he would contribute the amount himself. This generosity was of the greatest help to the medical school and hospital and was invariably without ostentation. The hospital building above mentioned has been used for years without having an inscription placed on it, His Royal Highness being averse to having his name thus brought into prominent view.

The contemplated erection of the new laboratory brought out the fact that more land was needed for the hospital compound. To this matter His Royal Highness also applied himself, with the result that an addition was finally made to the compound on the side toward the railway property at Bangkok Noi; a building was erected on this before his return to Siam.

On September 6 of this year (1920) came the announcement of a gift to the University of an endowment fund of Ticals 200,000, made by Prince Mahidol to celebrate his twenty-eighth birthday and in honor of his father and grandmother. The income of this fund is used in providing scholarships for students and members of the staff of the University to study abroad for periods of four or more years. These scholarships are in medicine or in the major premedical subjects of chemistry, physics and biology. This generous gift therefore provides in perpetuity a fund for the education of students or teachers of medicine or the premedical branches of science. Establishing this endowment was one of the far-seeing efforts of His Royal Highness to provide well trained teachers or practitioners of medicine and teachers of the sciences that are the foundations of medicine. It was an addition to his provision of personal scholarships instituted in 1917.

That this idea of preparing medical teachers for the future was constantly in his mind was at this time given a further proof. During his studies in the laboratory at Siriraj he had been impressed

by the work of one of the members of the laboratory staff. When he left in October to continue his studies at Harvard, he took this man along on an additional private scholarship. The man thus selected is now head of a department in the Faculty of Medicine.

The aversion of Prince Mahidol to public demonstrations in his honor was further shown in connection with his gift of the previously mentioned endowment fund to the University. The authorities of that institution of course greatly appreciated this gift and very naturally wished to show their gratitude in a fitting manner. Therefore a meeting of the entire personnel—administrative officers, teaching staff and students—was arranged, with a program of speeches of acceptance and reply, according to world-wide custom on such occasions. To the consternation and disappointment of everybody, His Royal Highness said that he would not attend the meeting. He said he was sorry to disappoint the people of the University but his part was to do the things that he could for the institution, and not to attend a meeting of this type and be the hero of the occasion and hear himself glorified. So the meeting was not held.

During this stay in Bangkok, His Royal Highness wrote a popular article on " Tuberculosis " for the Department of Public Health to print as a pamphlet. This was distributed at the cremation ceremonies for H. R. H. Prince Chakrabongs of Bishnulok on September 24, 1920.

On October 4 His Royal Highness left for America to complete his year of public health at Harvard University. His stay of a few months in Siam during this year had brought about a great change in the outlook of medicine, especially of the medical school and Siriraj hospital. Extra land for the compound was assured and there were promises of money for the erection of school and hospital buildings. University scholarships were provided by his endowment and his personal scholarships were to be increased in number. The Minister of Education stated at the station his belief that enough impetus had been given by the work of the Prince to last until he returned; the medical situation to him now seemed bright where a few months before there had been only darkness.

CHAPTER II

The Years 1921-1923 (B. E. 2464-2466)

The chief medical event for this country in these years was the negotiation between the Siamese Government, as represented by the Ministry of Education, and the Rockefeller Foundation, through its Division of Medical Education, looking to the co-operation of the latter in a program of advancement of medical education in Siam. Only a brief summary of the steps in that important event can be given here.

This project arose from the needs of the Siamese Red Cross Society and the International Health Board of the Foundation in their several years' campaign against hookworm disease. The need for better-trained physicians in this work was very keenly felt. In 1920 the representative of the International Health Board in Siam, Dr. M. E. Barnes, began quietly working on the subject of a possible co-operation in medical education.

This subject by various steps reached the point that on May 16, 1921, His Excellency the Minister of Education sent to the Foundation a note of inquiry regarding the matter. On July 29 a reply from President Vincent of the Foundation stated that Director Pearce of the Division of Medical Education might come to Siam and look into the proposition. On October 31, Dr. Pearce arrived in Bangkok, leaving on November 7. With officials of the Ministry he discussed the question of medical education and the Minister asked him to suggest a plan for its improvement. On January 23, 1922, the Minister received a letter from Dr. Pearce embodying his suggestions on the subject in question.

On February 6, 1922, Prince Mahidol entered these discussions by a conference in London with President Vincent and Dr. Rose, General Director of the International Health Board. Both of these men were most favorably impressed by his interest in medical education and his frankness in discussing the conditions then existing in Siam. On February 25, Prince Mahidol had another conference with President Vincent, in Berne, Switzerland. They discussed the financial undertaking in establishing and maintaining a modern medical

school. His Royal Highness realized the difficulties to be overcome in Siam and again impressed Dr. Vincent by mentioning them in a way indicating that he wished the Foundation to grasp fully the situation in order to avoid future misunderstandings.

In April Prince Mahidol was appointed by the Minister of Education president of a committee to handle the matter and in May sent his opinion regarding the suggestions of Dr. Pearce. In August, the Minister of Education, in reply to the suggestions of Dr. Pearce, stated that Prince Mahidol would take up with him the question of details as to the proposed co-operation, His Royal Highness being authorized to act as the representative of the Minister.

On October 2, 1922, the first meeting between Prince Mahidol and Dr. Pearce took place in Paris. At that time the details of a plan of co-operation with the Faculty of Medicine were fully worked out, subject to approval by the Siamese Government and the Foundation. This approval was given by both parties and was followed by other conferences in London and New York as plans developed in regard to buildings, appointments and fellowships.

The program included 1. six visiting professors to organize the major branches of instruction; 2. a building program involving the contribution by the Foundation of $125,000 (later increased to $130,000); and 3. Foundation fellowships to Siamese teachers for postgraduate study abroad. (A second co-operative building program for the medical and nursing schools, involving Ticals 300,000 each from the Foundation and the Government, was arranged later.)

In May, 1923, Dr. W. S. Carter, Assistant Director of the Foundation's Division of Medical Education, visited Bangkok. In conjunction with His Excellency the Minister, His Excellency Phya Baisal Silpasatra (the Under-Secretry), and Dr. Barnes, a proposition looking to an additional co-operation of the Foundation with the Faculty of Arts and Sciences, for the purpose of advancing the instruction of the premedical years (thus aiding the medical school) was drawn up and sent to Prince Mahidol. In September His Royal Highness signified his approval of this plan and in November the Miister sent a formal application to the Foundation. The plan was later endorsed by that organization and a five-year program was

made out. It included arrangements for four visiting professors and a number of postgraduate fellowships.

The later co-operation with the School of Midwifery and Nursing of Siriraj hospital followed as described in Chapter III. These activities rapidly advanced medical and nursing education, bringing them to a point in their progress that was pleasing to His Royal Highness. Attainment and maintenance of a high standard in both was his earnest desire.

These things have evolved from the first program as arranged with Dr. Pearce by Prince Mahidol. The deep interest of His Royal Highness in medical education, his being engaged in the study of medicine himself, his frankness, his transparent honesty of purpose, his own financial contributions to the school and hospital as elsewhere described, had a very great deal to do with favorable consideration by the Foundation. And he was of the greatest help in arranging the multiplicity of details regarding the co-operation, thus successfully bringing this aid to medical education in Siam. The highest praise is to be accorded his efforts in this affair.

CHAPTER III

The Years 1924-1925 (B. E. 2467-2468)

During the whole of 1924 and the first half of 1925, Prince Mahidol was in Siam. This was a period of multiple activities in connection with the progressing premedical and medical education and also in other medical lines, especially public health.

When the details of Foundation co-operation with the Ministry of Education were completed in 1923, they concerned only the Faculty of Medicine. As mentioned in Chapter II, later co-operation with the Faculty of Arts and Sciences included visiting heads for the departments of Physics, Chemistry, Biology and English and fellowships for postgraduate studies by teachers in the three first-named subjects. New laboratories of science were to be built and equipped by the University.

The location and erection of the building for these laboratories

brought into question a number of points concerning the future of the University. Many of these points were difficult to settle and there were greatly diversified opinions regarding them. Prince Mahidol was deeply interested in the University (he was at that time Director-General) and had been from the time of our first meeting. He favored a general survey of University and secondary school education as a basis for deciding upon the work to be accomplished by the institution, including the number of faculties necessary for carrying out this work. He often expressed the view that it had never been proved that Siam needed a University modeled after those of Western countries; at least agriculture, business, and the training of teachers were important points to be considered in its final organization.

At that time the premedical students formed the great majority of those attending the Faculty of Arts and Sciences. If this were to continue, Prince Mahidol believed the science building should be at Siriraj, with the teaching controlled by the Faculty of Medicine. But if that were done and these students withdrawn from the Faculty of Arts and Sciences, it would be a serious blow not only to that Faculty but also to the University itself, if the latter was to be continued and expanded. The claims of the University as a whole were finally decided by His Royal Highness to be stronger than one of its faculties and he abandoned the idea of the science building at Siriraj Hospital; it was finally placed in the University grounds.

During the year 1924 the medical law of B. E. 2466 was being put into effect by the organization of the Medical Council. A number of points as to its relation to the medical school were rumored or actually raised. His Royal Highness advocated an attitude of caution by officials of the Ministry and the school in order to avoid any possible conflict over details between organizations that were working for the same end, namely, the advance of medicine in Siam. This was one of his marked traits, the avoiding of serious differences between parties that should work together. This does not mean that he was willing to sacrifice principles or well-grounded opinions simply to ensure smoothness of negotiations; his attitude was that of extending discussion, of advancing further reasons, of

getting at the real facts of the case. And always with a broad view toward opposing opinions if he felt they were honestly held; if he felt there were ulterior motives or maneuvering simply for advantage or for personal gain, he was adamant.

In February of 1924, Prince Mahidol took official quarters at the Ministry of Education and notification was given that all medical school matters were to be taken up with him. Siriraj hospital affairs were also to go through his hands. Thus began a work that soon became very distasteful to him. His scientific mind rebelled against the sitting at a desk signing papers, smoothing out differences of opinion, correcting errors of subordinates, and following the thousand-and-one details of routine office work. He wished after a short time to get away from this and take a teaching position.

The work during this period brought him very often to the hospital and he would talk to me by the hour, going over all the University situation (especially the two faculties concerned with premedical and medical education) from every possible angle. Plan after plan for the remaining buildings of the University was made and discarded as unsatisfactory until he had one that pleased him fairly well. Then the medical school, the hospital, the grounds, the buildings needed in reconstruction, the teachers, the nursing situation, every point was considered in minute detail. Added to these matters were his personal aspirations for further medical study and teaching and his plans for scholarships. In these talks he bared his inmost thoughts and I came to know and understand the man as never before and I believe as but few persons ever came to know him. Through it all his real character stood out as a beacon among the storms of impatience with routine work and the serious pessimism caused by slow-moving improvements and his inability to advance them more rapidly or according to his own plans. These pessimistic periods affected His Royal Highness adversely from a physical standpoint because he was not of the rugged type to withstand such strain. But whatever the effect of his impatience was upon himself, or upon others, his basic principles and his ambition for medicine in his country were ever clear; nothing obscured those principles or that desire.

Later in the year he began teaching vertebrate anatomy in the

course of biology for the premedical students. This gave him pleasure and he was always enthusiastic when instructing students. Consequently my sympathy and my help were with him in his desire to get out of routine office work into teaching and planning and later to finish his course in medicine. Late in June he was relieved of the duties of Director-General and appointed " Inspector-General of Education." The duties of this position were purposely indefinite. The appointment gave him the privilege of inspection and directing attention to any thing in the Ministry, but the position was temporary and personal in that there was to be no successor when he left. The purpose was to relieve him of routine work and give to him a broad, advisory type of influence.

During the early part of this year (1924) the erection of a building for the departments of Anatomy and Physiology of the medical school, the cost of which was to be borne by the Foundation, was in order. At the suggestion of His Royal Highness it was decided that the Ministry control the erection of the building, instead of having this done by outside architects and their contractors. To this end a building committee was formed, to look after the numerous details of this work. In the meetings and privately His Royal Highness was insistent that the buildings for the school and hospital be without unnecessary architectural decoration, just plain workshops and homes for sick people without lattice and grill and carving and ornaments that are expensive and not useful. This was a deprivation to the architect, because to all architects appearance is an important feature of buildings, but Prince Mahidol was careful to see that the " gingerbread " decorations, as he called them, were left out. At all times he was just as careful to save money on this building and erect it at a minimum cost as if the expense were to be his own, perhaps even more careful.

A matter that caused a great deal of concern and planning during the latter part of 1924 was the reorganization of the hospital and medical school administration, made necessary by undesirable conditions that had developed. A thorough study of the situation was made by a committee from the Ministry and a change in the Dean's office, with school and hospital activities under one head, was indicated. After extended discussion of the problem, with H. R. H.

Prince Rangsit rendering sterling service as an invited member of the board of strategy, a dean was appointed on the basis of his being advised and supported by Prince Mahidol. His Royal Highness devised a scheme for the management when the change was made effective on April 1, 1925, for a period of two years.

That scheme provided a governing Council, made up of the faculty of the medical school and the nursing staff, of which His Royal Highness was persuaded to act as chairman; meetings were held twice monthly. In addition there was an executive committee of three (His Royal Highness, the Dean, and the Director of Studies) to put into effect the recommendations of the Council. When this management went into effect it included the appointment of H. S. H. Princess Chandara Nibha as Lady Superintendent of the school of Midwifery and Nursing. Prince Mahidol had earlier requested Her Serene Highness to help the school by accepting such a position, another instance of his foresight in meeting conditions and in selecting the right person for the place. He wished particular attention paid to the living conditions of the nurses. He always held that the teaching of morals and in general the right methods of living to the nurses was as valuable as the regular course in nursing technic itself.

It soon became apparent that the Council was just the right thing to meet the conditions existing at that time. With many high-tension situations arising in the institution during this stormy period of transition, the Council on many occasions proved to be the salvation of the management. Unfortunately His Royal Highness left for Europe about three months after the inauguration of the scheme but it was continued for the assigned period of two years. As expected, developing conditions made it advisable at the end of that period that the Council be superseded by the separate bodies of the Faculty of Medicine and the Hospital Staff, but for the period of transition for which the Council was devised, nothing could have better answered the purpose. No other one act of wisdom on the part of Prince Mahidol accomplished more for the general good of the institution at Siriraj than did this one.

In January of 1925 occurred another episode in the medical activities of His Royal Highness when he went to Chiengmai to dedi-

cate the new McCormick hospital of the American Presbyterian Mission. When the invitation came he was in a quandary about its acceptance, owing to his keen recognition of the eternal fitness of things. If he went officially, there would be more expense for the government in the way of receptions and the like than he wished to incur. If he went incognito there would be criticism and the feelings of the people would be hurt. Again note his idea that money should be saved for permanently useful things but also the fact that the feelings of the people and the government officials were to be respected; he finally decided that he must go officially.

While at Chiengmai he opened the new McCormick hospital for the missionaries and also presided at the dedication of the new municipal hospital and at the opening of a Red Cross health center. While on this trip he offered to support two graduates of the reorganized medical school each year as house officers at the McCormick hospital, if that institution would furnish living quarters for them. He also saw conditions that led him to offer to support for three years a foreign physician to help in the work of the hospital. That physician later came on duty but the arrangement for house officers has not been put into effect.

The visiting Professor of Physiology at the medical school at that time wished to carry out observations on monkeys. Proper quarters for these animals were not then available in the school compound and it was considered doubtful if they should be housed at that place. Prince Mahidol offered to keep them in his own compound and built enclosures there for them. Some of the details leading up to this were not very pleasing but all things were overlooked in his desire to help in research work and to aid the visiting teachers.

The subject of the training of nurses at Siriraj hospital came into prominence early in 1925. The question of obtaining two foreign nurses to help in reorganizing the school and in teaching was debated for some time, as there was opposition to it. His Royal Highness supported in the Council the resolution favoring this project and aided in its passage. When in the discussion the fact was cited that many graduate nurses leave this work to get married, he emphasized the great value of a nurse's course of training to those

who afterward become wives, as well as to those who stay in the profession.

Two problems arose concerning the scheme that was outlined for improving the nursing school. One was a suitable home for pupil and graduate nurses, the other was financing the proposed visiting nurses. Prince Mahidol brought the solution to both. He purchased the adjacent Wang Lang school from the Presbyterian Mission for Tcs. 50,000 and offered to rent it to the hospital, at a purely nominal sum, as a home for nurses. He later advanced some Tsc. 20,000 for repairs to the school buildings and the erection of a house for the Lady Superintendent. A maximum of Tcs. 6,200 per year was guaranteed for alterations and repairs and minor extensions. The second question, that of salary for the two visiting nurses, was met by his offer to finance both of these. These offers were made on May 31, 1925, though the Mission buildings could not be secured until April 1, 1926. Of course these offers were accepted by the Ministry and the nursing situation thereby changed from one of difficulty to one of accomplishment. Again had His Royal Highness by his generosity met and solved a problem dealing with the finances of the hospital.

All this strenuous dealing with many conflicting opinions as to buildings, personnel, the management of school and hospital, and the basic University problem that refused to be settled, told on the physical condition of Prince Mahidol and it came to be seen that he was not well. In fact before returning to Siam in 1923 he had been told by a physician in Europe that he had not more than two years to live (a most unwise statement for a physician to make and for a patient a dark cloud under which to continue). This must have had an effect on the morale of His Royal Highness but he kept right on with his work, without a murmur of complaint or fear or anxiety to those with whom he was working. That was courage of the highest type.

Early in April, 1925, he felt that his condition must be heeded and asked that certain physicians in Bangkok examine him and report on his condition. This was done and their report advised that he get away from the heat of the tropics to an American or European locality with climate better adapted to his condition. On June

24 he left for Europe, taking with him on a personal scholarship for postgraduate study abroad a newly-appointed member of the University staff in physics. As always he did not intend to rest all the time. He informed Dr. Pearce that he was to visit Europe and perhaps America to restore his health but "at the same time I hope to be able to look up some of our students and visit some medical schools and hospitals in Central Europe."

This period (1924-25) of nearly two years in Bangkok was the most active and perhaps the most difficult one in the efforts of His Royal Highness to advance the medicine and nursing of his country. It led to far-reaching strides in that development but these advances were accompanied and made difficult by many periods of disappointment and discouragement. Unfortunately for his own peace of mind Prince Mahidol was not what we call a good "fighter." That is, he did not follow up the principles and lines of action he felt were right by a vigorous or aggressive attitude toward the views and actions of other people; he was too responsive to their comment and opposition, too sensitive to their personal remarks, too much of a gentleman as it were. Hence instead of going home after a day of discussion and disagreement as to policies and forgetting the personal side of these differences, he would brood over the situation and take to heart the remarks that had been made in or outside of meetings. As an illustration, he heard, at a time when we were discussing plans for school and hospital buildings, a remark of one of the doctors that the opinions of His Royal Highness were not to be taken seriously because he was not a physician. As a matter of fact he had studied the question of hospital buildings more thoroughly than had any member of the staff of physicians. But the remark hurt him and he remembered it. It even served as an added incentive to his desire to complete his medical course and obtain the degree, so that he could meet the physicians of the hospital on common grounds of professional education.

For the medical school and hospital this period had been one of advancement. The method of erecting the new buildings had been chosen and the laboratories of anatomy and physiology were under way. The administration of school and hospital had been put on a sound basis. A home for nurses had been secured and a program

for visiting nurses made possible. A Lady Superintendent of nurses had, in addition to many needed reforms in the school, brought the number of entrance applications from thirty up to seventy-five. For all of these His Royal Highness had been partly or entirely responsible. In spite of his physical condition and the many difficulties of the work, he had gone ahead and brought about improvements of the greatest value. Such accomplishments merited highest admiration.

During this period Prince Mahidol was in close touch with the Department of Public Health and in December, 1924, gave it definite assistance in teaching. This was in connection with the conference of Circle Health Officers held in Bangkok at the call of the Director-General of the Department. His Royal Highness lecturned to these officers and also gave practical demonstrations on various sanitary features of Bangkok. One of those lectures on " Practical Sanitation " was expanded by His Royal Highness into an article that was later published in the Health Bulletin of the Department of Public Health.

In November of 1925 he wrote me from Germany that he had consulted a physician who concluded that the action of his kidneys was due more to general weakness of constitution and nervousness than to changes in the organs themselves. " On the whole Dr. —'s prognosis is quite favorable. He recommends me to recognize my constitutional weakness which cannot probably be changed but to which one could adjust one's life in such a way that over-exertion, physical and mental, could be avoided. On being asked whether he would think that I could undertake to study medicine for two years more, his answer was in the affirmative. My own plan is still quite unsettled. I had expected a better result of my treatment. As it is I am rather in doubt as to the advisability of taking up further studies. I feel, however, that it is most desirable for me to get a medical qualification, should I resume my connection again with the medical school. I felt myself severely handicapped during the two years I was out there." He then had in mind the question of entering Harvard University for the final two years of the medical course, as he felt that the climate of England was not suitable for himself or his family. He had previously found that Scotland was still more unsuitable.

CHAPTER IV

THE YEARS 1926-1927 (B. E. 2469-2470)

Prince Mahidol arrived in Bangkok on February 16, 1926, to attend the coronation ceremonies of His Majesty King Prajadhipok. His stay in Siam was a short one. At that time he had in mind the obtaining of land to the north of Siriraj hospital compound. On this he planned to erect dormitories for the students of medicine, renting the buildings to the Ministry for a nominal sum as in the case of the nurses' home. The land was to be of sufficient extent to accommodate athletic grounds for the students. For some reason, presumably because the land could not then be obtained, this promising plan was not brought to completion.

During this short stay at home, His Royal Highness was very much interested in public health work. When the question of a place for some of his returning private students arose, he was undecided as to their going to the medical school or to the Department of Public Health. Both needed men and he was greatly interested in the advance of both activities. When it came to final settlement, the student himself was usually allowed to decide.

Some doubt or technical difficulty had arisen as to the building for Siriraj hospital that was to have been presented by His Majesty the late King Rama VI. This was taken up by Prince Mahidol and when he left for Europe on May 5 he said the building was assured. This later took the form of the Prince Asdang memorial building for medical patients.

In December of 1926 Prince Mahidol wrote me from America regarding several matters in connection with the medical school and hospital. He had shortly before had a conference in New York with officials of the Foundation concerning the nursing school. In connection with the latter he said in part: "As to what will happen after the Foundation will have withdrawn their interest, will depend upon the type of institution they have developed and upon the qualities, professional and moral, of the persons who have succeeded the representatives of the Rockefeller Foundation in the management of the school. I have, however, every confidence that in the five or more years of co-operation the Foundation and their repre-

sentatives would be able to create, permanently, an institution which I would be able to consider myself honoured to have the privilege of supporting, and that my choice of investing a considerable part of my capital and devoting time and energy to this particular school would be vindicated." This was putting the success of the school squarely up to both parties in the program. It further emphasized the fact that personal character always stood high in his estimate of one's fitness for a position.

Regarding his own work he said: "I am now very busy doing the third-year work at the Harvard Medical School with the hope of graduating in June, 1928. In the meantime I am also able to carry out some bacteriological and clinical work at the Children's Hospital in connection with diarrheal disease of children which I think might prove useful to Siam. After graduation I intend to take up special work in children's diseases for at least six months or a year. My health is excellent and the Medical School authorities are giving a very thorough supervision and examination of my physical condition." He had often spoken of the need here for instruction of mothers in the care of infants and small children, especially as regards their feeding. If he had ever taken up the actual practice of medicine, which he himself recognized as a rather remote probability, his work would have been the diseases of children.

Visitors to the residence of Prince and Madam Mahidol in Brookline, during this period of study at Harvard, found a happy and most industrious family. Siamese students in America received a cordial welcome at all times; it was truly an open house for them. His Royal Highness found relaxation from his studies by helping care for and train their children. They were buying fairly inexpensive clothes and otherwise saving in order that they might have more money to spend on scholarships for the education of young Siamese men and women. They felt they had no right to spend money simply for display. Some of his countrymen in America regarded all this as somewhat beneath the dignity of His Royal Highness, but at Harvard he was a student of medicine, not a Prince. His card read "Mr. Mahidol Songkla." While in a democratic country he was democratic, an attitude which we regarded as a real compliment to our country and one entirely worthy of a

Royal Prince. In his projects of education and gifts his wife was not only a willing and most efficient helper; she was also an originator. Their residence and study abroad did not for a moment lessen the concern of these two for the welfare of their countrymen.

In September of 1927 Prince Mahidol wrote that he endorsed the project (which had been considered by the Ministry and the Foundation) of obtaining a third visiting nurse as instructor in midwifery. The salary would be met by him as in the case of the two already here.

During this time Prince Mahidol was putting more energy into his studies than he himself recognized and his health was a matter of concern to the faculty. In November, 1927, in reply to an inquiry from His Royal Highness regarding work after his graduation in 1928, Dr. Pearce advised him to consult his physician in Boston before deciding on any plan. Dr. Pearce was frankly concerned about his health in view of the work he had been doing during the previous year, and, in connection with his projected postgraduate work, reminded him that obtaining his degree was after all the main object he had desired. Therefore he suggested that after receiving it His Royal Highness should adopt a course of action that would best conserve his health and strength. These points are mentioned to show that further study and better preparation were the dominating desires of this student of medicine. They even took precedence of his knowledge that his physical strength had a limit.

During this year the administration building at Siriraj hospital was completed and occupied. Besides administrative offices for the medical school and hospital it contains the outpatient department, the dispensary, library and reading rooms, record rooms for hospital histories, and an assembly room. The cost of this building was very close to Tcs. 200,000, of which half was contributed by Prince Mahidol. Therefore this building represents a further gift by him of approximately Tcs. 100,000.

In December, His Highness the Minister of Public Instruction received from His Royal Highness an inquiry as to serving for a year as house officer in Siriraj hospital when he returned after graduation. We agreed that there was no technical difficulty in

this, and that, in addition to giving him the opportunity he so greatly desired, there were several needed features about our service that would be begun or improved if he came in this capacity. Later it was decided to ask him to serve as Chief Resident House Officer, which would bring him in touch with every division of the hospital and with patients having all types of disease that are treated there.

CHAPTER V

The Years 1928-1929 (B. E. 2471-2472)

The greater part of the year 1928 was occupied by Prince Mahidol in personal rather than public affairs. As a part of special pediatric work at Harvard, he presented a well-written report of two cases of fish tapeworm in children, the first to be reported in Massachusetts. A part of this report, presented in conjunction with another writer, afterward appeared as an article in a medical journal.

In June he received the degree of M. D. (Doctor of Medicine) *cum laude* from Harvard University. This marked the high point in his personal aspirations for a knowledge of medicine. For this and his Certificate of Public Health (C. P. H.) he had spent six years at Harvard, one in premedical and five in medical courses. The last year of the six was completed under difficulties. About the middle of it there developed a lighting up of the old kidney trouble, during which there were grave doubts in the minds of his physicians as to his recovery. Fortunately the condition improved. Then just before the time for the final examinations he developed symptoms which led to the diagnosis of appendicitis. Because of this, the authorities of the school offered to waive his regular examinations and give him special privileges. This offer he declined and took all of the examinations with his classmates. After the examinations were finished with honor he underwent operation for removal of the appendix. Although performed under spinal anesthesia, in order to avoid the effect of a general anesthetic, this was a severe ordeal for him at the close of a hard year's work and for one in his general physical condition.

The condition of his health did not permit the postgraduate work in children's diseases that he had planned. Instead he went to the Continent to recuperate before returning to Siam. True to his habits, he did not spend all of his time recuperating. Part of it was taken in visiting his students and for various medical excursions. He overlooked nothing; he even sent a list of medical journals he was taking and others he thought of starting but wished checked off against the ones taken by Siriraj and the Pasteur Institute so he would not duplicate them.

In the latter part of the year (1928), His Royal Highness returned to Siam, reaching Singapore December 3, and Bangkok on December 13. When he disembarked at Singapore he appeared tired and worn out, but a few days on shore improved him greatly and in general he appeared stronger than we had expected. He had a very definite knowledge of his physical condition, because all possible tests had been made at Harvard and he knew the results. While he was in good general health his kidneys would function satisfactorily but if he caught cold or had an attack of influenza of similar upset, the effect would be felt at once. These things he discussed with me in his usual frank way, without attempting to minimize them. But he was not openly worried and, so far as one could judge, was resigned to the fact that he needed to order his activities in such a manner that he live at the level of damaged organs.

At that particular time he was not specially concerned with the financial affairs of the medical school and hospital, but he was keenly interested in the work that was being done by them. He had many helpful and stimulating ideas for students and graduates of medicine in his country. These he was asked to embody in a statement that could be published for the effect of its influence upon the school. To this he would not consent because he had been away from Siam for some time and felt out of touch with local medical conditions at the moment. Instead he gave the following statement regarding his work and his ideas of the duty of himself and others. It states so well his creed of service that it is worthy of preservation.

"I intend to take up permanent residence in Siam. All rumors and speculations regarding the position I am to occupy or the work

I am to do, from whatever source they may come, are entirely without foundation. I have not been offered any position, either by the Government or a private institution. My own plans are indefinite.

" My service shall, of course, be first of all at the disposal of His Majesty the King.

" At the same time I hope to be able to keep up my interest in things medical and in public health, and under the expert guidance of local authorities, I hope to gain some practical experience of Siamese conditions and perhaps make use of some of the knowledge which I have gathered during the course of my studies abroad.

" Regarding government service, I hope that I may be given only such work for which I am qualified both by training and temperament and that whatever task I am given I shall receive adequate financial support and popular co-operation, so as to make my undertaking really effective.

" My conception of loyalty to His Majesty forbids me merely to occupy a government post as its ornament and draw my pay regularly for so doing. In such case I feel that it would be better for me to vacate my position in favor of a deserving official who is more urgently in need of a government salary.

" Having recently submitted myself to a serious operation, the state of my health is still such that I will have to take up my social duties very gradually. I do not, therefore, expect to be very active socially during this coming season."

The few months of activity of His Royal Highness during 1929 were as usual along varied lines of medical interest. The outstanding one was that of personal scholarships. He set about increasing the number of these to ten. They were to be in medicine, public health, nursing, or premedical science subjects. Extracts from the information furnished prospective applicants indicate the views of Prince Mahidol regarding qualifications.

" It is not essential that the candidates be brilliant scholars or show high records; such distinctions would, of course, be counted in their favor but candidates must show special interest and aptitude for the specialty they propose to take up. Candidates must show evidence of having had sufficient preparation, which can be obtained

in Siam, for the special studies which they wish to undertake. Linguistic ability will also be considered in addition to other qualifications. In general the condidates must have exhausted all the opportunities of training in Siam before they will be sent abroad. In general, evidence of good health and perfect conduct and professional devotion would be required. Prospects of stable employment after the period of studies will be considered to be one of the favorable points. Applications for scholarships in Siam are also considered on the same general principles but more liberally." From the applicants thus obtained, two graduates in medicine and one in nursing were sent to America and England, many others remaining on the waiting list.

In January of 1929 Prince Mahidol joined the Medical Association of Siam and gave a general address at the annual meeting, there not being time to prepare a medical article. He stated that the study of medicine had brought him both interest and pleasure but his real motive in taking the course was to make himself useful to mankind. He spoke of the vast field open to medical development in Siam and said that research should be one of the first efforts. The conditions of disease here should be investigated. He found in medical books little or no reference to Siam because statistics from here have not been published or even obtained. This regard for research work was again emphasized in a letter of February 25, accompanying reprints of an investigative article by one of his students in Switzerland. The letter closes: "There is no need to repeat once more how glad I am that our fellows are doing this sort of work."

Later His Royal Highness was the first to sponsor definite research work in Siam. His letter to me as Dean, offering two fellowships for this purpose during B. E. 2472, gives such sound reasons therefor, is so clear and so fair, and is in every way so typical of the man that it merits inclusion here in full.

March 11th, 1929.

Dear Dr. Ellis,

The completion of the prescribed medical course does not imply that the student has acquired all that can be learned

of Medicine. On the contrary graduation only marks a step in the progress of medical education: namely, the fact that the student has completed his theoretical training and is now considered fit to take further responsibilities of practical and independent courses of studies of all that is connected with the problem of ill-health. It is a continuation of his medical studies in a slightly different form. Unless the new graduate realizes that he must remain a student all through his career in medicine he will not become a progressive physician.

Under such circumstances, I believe that the young medical graduate ought to be given the privilege to begin his career, after all only a new phase of education, under the supervision and guidance of more experienced men in a position of a house officer or laboratory worker for at least one year, until he has acquired sufficient self-confidence and the sense of responsibility to begin his work independently.

Unfortunately facilities for internships are limited. Therefore the present fellowships are offered to those of the graduating class of this year who have not secured such an internship, in order to still give them opportunities of practical training under supervision of experts in certain special fields of Medicine.

These offers are frankly experimental and will be tendered in this form only for one year. In the course of time it is hoped that we might learn to judge whether this type of fellowship would answer the needs of our school or not. Of course modifications would then be introduced so as to achieve the greatest usefulness to the problem of medical education in Siam.

For the present Two Fellowships are herewith offered under following conditions.

(1) The name of these fellowships is to be: "Siriraj Hospital Research and Teaching Fellowship."

(2) The purpose of these fellowships is to give the holders further practical training in some phase of Medicine with a view of preparing them to undertake further independent research and to enable them to

acquire the right kind of self-confidence necessary for professional work, and to fully realize the great responsibility of their high mission and to increase their interest and understanding of the problem of ill-health and finally to awaken the desire to teach and share such knowledge as would lead to better appreciation of the value of sound body and mind among the Siamese people.

(3) Each fellowship consists of a monthly salary of ONE HUNDRED BAHTS beginning with the month of April and ending with the month of March, 2472.

At the end of the year, if the holder has done satisfactory work and produced satisfactory evidence of this work in the form of a thesis embodying the result of his studies, at the recommendation of the Faculty of Medicine of the University, a bonus of SEVEN HUNDRED AND TWENTY BAHTS will be granted.

(4) This fellowship does not include free board or lodging at the Hospital for the holder. Lodging, however, may be given by arrangement with the hospital authorities.

(5) The Faculty are however herewith requested to give the holder the standing of a member of the instructing staff in return for his services as assistant in the operation of the Hospital, School and teaching routine in addition to the holder's special problem.

(6) The Faculty are herewith given the power to determine the nature and scope of these two fellowships and to select the candidates from among the graduating class of this year who have entered their applications and to assign them to such Departments as are considered most needing of assistants and most capable of handling such problems. They also are requested to direct and supervise the work of the fellows and to judge the degree of their success. Finally they are also given the right to decide

whether or not to award the above mentioned bonus as a mark of their special appreciation.

(7) In case one or both of the candidates show exceptional ability fellowships abroad might be granted later.

(8) The production of a THESIS based upon original, independent work with complete reference bibliography of the subject is required of each candidate as an essential feature of the work. The quality of this thesis is to be considered as one of the deciding factors whether to grant the bonus or not.

(9) The cost of research is to be borne partly by the Department the holder is assigned to and partly by the holder himself, as agreed upon between the candidate and the chief of the Department unless special funds may be made available from other sources.

(10) Of course the candidate must be a person of good moral character, interested in his work and of sound mental and physical health.

Applications for these fellowships are herewith invited. The selection must be made in time for an official request for the postponement of military service to be effected.

Yours very sincerely,

(signed) MAHIDOL SONGKLA.

Needless to say, the Faculty most gladly accepted this generous offer and selected two of the graduates of B. E. 2471 for the fellowships. They worked diligently, one in the Department of Pathology, the other in the Department of Medicine. One of them in the course of his work studied the bacteria from the intestine of a very sick baby in the hospital, finding among others a very rare species (just the type of work followed by His Royal Highness during his senior year at Harvard). On these findings was based treatment that undoubtedly saved the baby's life. On the child's next birthday, soon after its recovery, the grateful father sent the hospital a check for Ticals 500.

One of these fellowships has been extended by a University fund

and the entire period gave rise to several reports of investigations, two of which were presented by the holder at the Congress of the Far Eastern Association of Tropical Medicine, held at Bangkok in December, 1930. It is greatly desired that endowments be secured to perpetuate at least one of these fellowships as a memorial to H. R. H. Prince Mahidol. No more appropriate or fitting tribute to this benefactor could be made.

The first paragraph of the preceding quoted letter brings out a point that His Royal Highness considered of great importance, namely, that a physician after he graduates must still at heart remain a student. This fact with a slightly different application was also emphasized on his return from abroad. The additional feature was that a student who takes his course in medicine abroad in a temperate zone and studies the diseases of that climate, needs to continue his studies on his return to the tropical climate of Siam for at least a year before he can consider himself acquainted with the diseases and conditions here. That was the basis of his intense desire to serve as house officer in Siriraj hospital. This he had written about long before returning from abroad. But it soon became apparent that the details of such an arrangement were too many and that this service could not be taken. This was a keen disappointment to him and also to the staff of the hospital. His presence there would have been a most valuable stimulus to the whole medical and nursing staff.

Then there came to him the thought that a similar service might be arranged at the McCormick hospital in Chiengmai. The authorities there were very eager to have him come. Therefore when I asked him to deliver a series of lectures on Child Welfare in our public health course, he had to decline because he would be away from Bangkok.

At this time the Department of Public Health was considering plans for the enlargement of the Vajira hospital. At the request of the Director-General, His Royal Highness suggested changes amounting essentially to a new plan for the additions.

Before going North, Prince Mahidol several times mentioned the co-operation of the Rockefeller Foundation and the possibility of it continuing after the then existing contracts with visiting teachers

expired. For such continuation he was very desirous. He felt that each succeeding class of graduates from the school of medicine under the circumstances of the co-operation, would more firmly impress upon the people of his country the value of a school maintaining a high standard of training. Such standard he had consistently advocated from the beginning and therefore he had no sympathy with the idea of some that the school should turn out several grades of practitioners. Because this idea had been advanced repeatedly since reorganization of the school began, His Royal Highness feared that when co-operation ended, efforts would be made to bring about changes that would result in lowering the standard worked out during that period. This could come by admitting some students of say the sixth or eighth Madhayom, without college training in the sciences, and then graduating them (with certificates) after various periods of medical study of less than four years. This fear he had stated many times during the preceding several years and was particularly oppressed by it after his return from Europe in 1928.

His Royal Highness was at this time interested in a proposed new dormitory for medical students and just before he left for the North in April, said he would present to the school as a site for this a certain property on the river front near Siriraj hospital. He very much desired that adjoining property be obtained and added to his own for the purpose of the building and was willing to help the government financially in securing it. The sequel to this affair is that after His Royal Highness passed on, it was found that the property he had offered to present really belonged to his sister, H. R. H. Princess Valaya. When this was ascertained, Her Royal Highness at once presented the land to the school, a very gracious and greatly appreciated act. On this land was erected a three-story dormitory for 100 students that was first occupied in 1931 (B. E. 2474).

On April 24, 1929, His Royal Highness left for Chiengmai. There he went on service in the McCormick hospital, thus beginning his much desired study of tropical medicine as found in the diseases of his own people. His generosity was again shown by his contribution of $3,000 gold to the fund for an X-ray apparatus

for the hospital. But he was not destined to continue this study for very long. On May 18 he returned to Bangkok, coming at once to Siriraj hospital to present a specimen he had brought down and also to ask for surgical advice. He very evidently was ill. In a few days he was confined to his home under treatment and did not thereafter leave it.

His further illness of four months was marked by a series of improvements and relapses that alternately raised and lowered the hopes of his family and his physicians and his friends. He himself felt periods of encouragement but these were interspersed by days of terrific depression. Both he and his physicians knew that the anemia was progressing and that each week of the local disease lowered his general condition and made recovery less possible.

But through all this he would talk by the hour of medical affairs; of the past in the way of his students days, of the future and its work when he would again be well. The few times that I saw him he would talk only of affairs of the hospital and school, as in the days when he was active. He was then arranging to send a nurse to America on scholarship and it was only when physical weakness forced him that he turned the details over to me.

The last time I saw Prince Mahidol, in August, I was able to report the strong probability that the Foundation would contribute to another building program that included extension of our pathology building and a new building for the school of nursing. This greatly pleased him and he at once said he would add to the proposed amount in order to make the building for the nurses a satisfactory one. When I stated the assurance of the architect that the amount named was quite ample, he said, " Then I will donate the ground." And this he did.

Thus our last conversation was on the subject that had been the chief or only one of every talk we had during the nine years of our planning and work together. Prince Mahidol would talk of nothing else—education, medical education, nursing education, publice health, child welfare—these things he studied, he worked for, he actually lived. And so they were with him until he left them and us and on September 24, 1929, began the great adventure into the land of the beyond.

CHAPTER VI

Summary

The foregoing pages have given briefly the various activities in medicine followed by His Royal Highness Prince Mahidol. They included medical education, nursing education, public health, and medical research. In all these phases he rendered sterling service to medicine in Siam. This service was particularly valuable because of the time at which it was given. That time was one of transition in the medical school from an institution lacking in buildings, equipment, and trained teachers toward one possessing all three of these requirements. The same can be said of the school of midwifery and nursing. Moreover it was the first part of a transition which is not yet completed and of which the early years are by far the most difficult. Pioneers in such undertakings deserve the major part of the credit if the projects succeed, for to whatever heights they may later rise the foundation has first to come.

Prince Mahidol contributed land and buildings and also helped in the training of men and women for teachers. Financial contributions included Ticals 200,000 for University scholarships in the medical and premedical sciences; Ticals 180,000 for medical school and hospital buildings; Ticals 75,000 for a nurses' home; Ticals 25,000 as salaries of visiting nurses; Ticals 3,840 for inaugurating postgraduate research; Ticals 16,000 for support of a physician at McCormick hospital, Chiengmai, and Ticals 6,750 to the X-ray fund of that institution. In addition to these public benefactions, his private scholarships in medicine and nursing and the premedical sciences must have amounted to several hundred thousand ticals. It would seem that three-quarters of a million ticals is a very conservative estimate of the amount directly or indirectly contributed by His Royal Highness to the advance of medicine in Siam while he was living. And in his will he bequeathed Ticals 500,000 as an endowment for scholarships in medicine and nursing and their contributory sciences.

His personal influence in difficult to summarize. In connection with medical and nursing education, the buildings, the administration, the support of basic principles, the insistence on proper stand-

ards, the moral support of numerous side projects, his personal example of studying medicine, his part in securing the aid of the Foundation—all these things cannot be combined into a concrete statement of valuation. Nor can his advice and assistance to the Department of Public Health. For the last ten years of his life he was easily the outstanding figure in the medical advancement of his own country. To the faculty of the medical school and the medical and nursing staff of Siriraj hospital his passing came as a staggering blow. By every member the loss is felt as a personal one, as well as scientific and institutional. We lament the passing of one who for years was a staunch supporter of the institution and of medical and nursing progress in the broadest sense of the word. Prince Mahidol stood four-square for the highest and best in personal and professional conduct. To him medicine and nursing meant the thorough preparation of upright men and women and then a life of service. The support of such a man, irrespective of his monetary gifts, is of tremendous value to an institution. So ours has suffered an irreparable loss.

The real value of the achievements of Prince Mahidol will become more apparent as the years pass by. But we can say, even now, that for this interest in medicine his people owe him an eternal debt of gratitude. And no greater memorial can they give, and in no way can they more surely please him could he but know, than to carry on with the work which he so generously helped begin. The advancement of medicine and the lessening of disease among his people he chose for his life work and was called away with the task only well begun. As a token of loyalty to his efforts and the carrying out of his highest wishes this work must continue. There can be no faltering in the program he helped inaugurate.

Recently His Majesty the King has dedicated, as a memorial from the family and the friends of Prince Mahidol, a building for private patients that will be a permanent addition to the facilities of Siriraj hospital for taking care of the sick. The hospital accepts this gift with thankfulness and humility. May the service rendered therein be always tinged with the graciousness of him to whose memory it has been erected; his work is finished but his good deeds live after him.

And so there ended at an early age a life that the holder had used to the full in acquiring knowledge for self and in multiple acts of benefit for others. These things made it a life unusually well lived. And the future was still more full of promise. The early death of such a man is to us poor mortals most saddening and untimely. But we have as heritage what that life accomplished and the memory of one whose personality was an inspiration to all with whom he came in contact.

" And so our great men come and go. Hail and farewell! "

MEDICO-HISTORICAL ACTIVITIES IN THE UNITED STATES

NORTH CAROLINA

University of North Carolina, CHAPEL HILL

The members of the Sigma Theta Chapter of Phi Chi Medical Fraternity have for the last three years devoted some twenty minutes of each weekly meeting to the study of some phase of medical history. In order to plan their work more systematically, they got in touch with our Institute and decided to follow Dr. Sigerist's syllabus in the future, devoting two meetings to each lecture.

TENNESSEE

Vanderbilt University, NASHVILLE

"A series of illustrated lectures is given by *Dr. William Groce Harrison*, Lecturer in the History of Medicine, each lecture covering some phase of medical history. Epoch making events in modern medicine will be discussed, so that the course will have practical as well as a cultural interest for the student. One hour a week during the first trimester of the fourth year."

The course extends over three years. The subject of the course this year was "Medical History from the Beginning to the Renaissance." The course was attended by the entire fourth year class and by a number of students from other classes, by students of the nurses' school, as well as by some faculty members. Eighteen senior students contributed papers on medico-historical subjects.

The library of the school of medicine has a good working library in medical history and has been greatly enriched through the acquisition of the collection of George H. Weaver of Chicago that contains many valuable books on American medicine. In addition the library has purchased the collection of Albert Moll that is particularly rich in books on psychotherapy and occultism.

Meharry Medical College, NASHVILLE

"During the first semester a brief course on Ethics, Professional Efficiency, including Insurance Examinations and Medical History, will be presented to members of the Freshman Class. Also talks on the ethics of the profession, etc. Total number of hours per student, 16. Text—'The History of Medicine in Brief'; Ethics: 'As a Man Thinketh'."

WEST VIRGINIA

West Virginia University, MORGANTOWN

The students of the School of Medicine raised among themselves $150 to enable the library to purchase medical history books.

MARYLAND

JOHNS HOPKINS UNIVERSITY, BALTIMORE

Institute of the History of Medicine

Dr. Sanford V. Larkey, Librarian of the William H. Welch Medical Library, was appointed Lecturer of the History of Medicine on November 1st.

On December 6th Dr. Sigerist delivered a lecture on "Pasteur and Koch" at *Goucher College* before Dean Dorothy Stimson's History of Science class. A group of *Goucher College* students visited the Institute on December 11th.

Dr. Sigerist gave four lectures at *Vanderbilt University* in Nashville, Tennessee. On December 12th he spoke on "Renaissance Medicine" before the medical students and faculty. The same evening he gave a talk on "Medical Organization in Europe" before the Faculty Club. On December 13th he addressed the pre-medical students of the undergraduate department on "The History of the Medical Profession" and in the evening he gave a lecture on "Pasteur and Koch" before the medical students and faculty.

On December 19th Dr. Sanford V. Larkey delivered a lecture on "The Role of Scientists in the Elizabethan Government" before the Washington Academy of Sciences in Washington, D. C.

Dr. William L. Straus, Jr. of the Department of Anatomy presented the Institute with five engravings, portraits of Copernicus, Erasmus, Pascal, Harvey and Ray.